NEW BRUNSWICK CONCRETE

Garage & Basement Floors

Garage floor slabs, basement floor replacement, epoxy coatings, polyaspartic finishes, and moisture management for NB

16 Expert Answers from Concrete IQ

newbrunswickconcrete.com/construction-brain

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Q1

How thick should a concrete garage floor be in Bathurst if I plan to park a heavy commercial trailer or skid steer on it occasionally?

For occasional heavy commercial equipment in Bathurst, you'll need a minimum 6-inch thick concrete slab, but 8 inches is the safer choice for true commercial trailers and skid steers. Standard 4-5 inch residential garage floors are designed for cars and light trucks — they'll crack under concentrated loads from heavy equipment outriggers, trailer tongue weights, or skid steer tracks.

Commercial Equipment Load Considerations

A loaded commercial trailer can impose point loads of 15,000-25,000 pounds through small contact areas like trailer legs or tongue wheels. Skid steers concentrate their entire weight (6,000-12,000 pounds) through narrow tracks or small tires, creating ground pressures that easily exceed what residential concrete can handle. The key is distributing these concentrated loads across a thicker, stronger slab.

For **6-inch thickness**, use 32 MPa (4,500 PSI) air-entrained concrete with #15M rebar on 12-inch centers both ways, placed 3 inches from the bottom of the slab. This provides adequate strength for occasional heavy use — maybe once or twice per month. For **8-inch thickness**, you can use 25-30 MPa concrete but still include the rebar grid. The extra thickness distributes loads better and provides more durability under repeated heavy loading.

Bathurst Climate Requirements

Bathurst's northern New Brunswick location means you're dealing with some of the province's harshest freeze-thaw conditions — potentially 160+ cycles per year with coastal salt air effects. Air-entrained concrete is absolutely mandatory for the slab surface. Even though this is an interior garage floor, moisture from snow melt, salt spray, and humidity will penetrate the concrete surface. The air entrainment (4-7% air content) gives freezing moisture room to expand without spalling the surface.

Your base preparation is critical in Bathurst's frost-prone soils. Remove any organic material and excavate to undisturbed soil or properly compact granular fill. Install 6-8 inches of compacted gravel base with a vapor barrier (6-mil poly) between the gravel and concrete to prevent moisture wicking from below. The slab should be isolated from the foundation walls with expansion joint material to allow for thermal movement.

Reinforcement and Control Joints

Heavy equipment creates dynamic loads that standard wire mesh can't handle. Use #15M rebar in a 12-inch grid pattern, supported on chairs at the proper height (3 inches from bottom for 6-inch slab, 4 inches from bottom for 8-inch slab). Install control joints every 12-15 feet maximum to control where shrinkage cracks occur — ideally aligned with any overhead door openings.

Consider adding fiber reinforcement (steel or synthetic) to the concrete mix for additional crack resistance. This costs an extra $30-50 per cubic yard but helps control plastic shrinkage cracking during curing and improves impact resistance under heavy equipment.

Professional Installation Recommended

An 8-inch commercial-grade garage floor requires 8-12 cubic yards of concrete that must be placed, screeded, and finished within a narrow time window. The reinforcement installation, proper consolidation around rebar, and achieving the correct surface finish for heavy equipment use requires professional experience. Mistakes in a heavy-duty slab are expensive to fix and compromise the floor's load-bearing capacity.

Find experienced concrete contractors familiar with commercial flooring requirements through the New Brunswick Construction Network — they'll understand the specific challenges of heavy equipment floors in Bathurst's climate conditions.

Q2

How do I pour a level concrete floor in a barn on a rural Carleton County NB property with uneven ground?

Pouring a level concrete floor in a barn requires careful site preparation, proper drainage, and a well-planned approach to handle the uneven ground conditions common in rural Carleton County. This is a substantial project that demands attention to frost protection, drainage, and structural considerations given NB's challenging climate.

Site Assessment and Preparation

Start by determining the existing grade variations across your barn footprint. Use a transit level or laser level to map high and low spots — rural NB properties often have significant grade changes that aren't obvious to the eye. You'll need to establish your desired finish floor elevation, keeping in mind that the barn floor should be at least 6 inches above the surrounding grade for proper drainage away from the structure.

The uneven ground will require extensive excavation and fill work. Remove all organic material, roots, and topsoil down to stable subgrade. In Carleton County's clay and mixed soils, you may encounter areas that hold water or become unstable when disturbed. Any soft or organic areas must be excavated deeper and backfilled with properly compacted granular material.

Frost Protection and Drainage

Even though your barn may not be heated, the floor slab still needs protection from frost heave. Install a minimum 6-inch layer of compacted gravel base under the entire slab — this provides thermal break and drainage. The gravel also helps bridge minor variations in the subgrade and provides a stable working surface.

Perimeter drainage is critical in rural NB where spring runoff and seasonal water table changes can create hydrostatic pressure under slabs. Install weeping tile around the barn perimeter at footing level, sloped to daylight or a sump system. Without proper drainage, your level floor can heave unevenly during freeze-thaw cycles.

Leveling Strategy

For significant grade variations, use the gravel base as your primary leveling tool rather than varying concrete thickness. A 4-6 inch concrete slab should maintain consistent thickness across the entire pour. Areas where the original grade is low get more gravel; high spots get excavated deeper. This approach is more economical than using concrete to level and provides better structural performance.

Install screed rails (2x4 lumber or metal rails) set to your desired finish elevation across the barn width every 8-10 feet. These rails guide your screed board and ensure a level surface. Use a transit or laser level to set rail elevations precisely — even small errors compound across a large barn floor.

Concrete Specifications for Rural NB

Specify air-entrained concrete (25-30 MPa) even for barn floors. NB's 150+ annual freeze-thaw cycles affect all exterior-grade concrete, and barn floors often see moisture from equipment washing, snow melt, and condensation. Budget $190-$240 per cubic yard delivered to rural Carleton County.

Include welded wire mesh (6x6 W1.4) or rebar on 24-inch centers to control cracking. Support reinforcement on chairs at mid-slab height. For a typical barn, plan on 5-6 inch thick concrete with control joints every 12-15 feet to manage shrinkage cracking.

Practical Execution

A barn floor is typically 1,500-4,000 square feet requiring 15-40 cubic yards of concrete — well beyond DIY capability. The concrete must be placed, screeded, and finished within 2-3 hours before initial set begins. Rural delivery may involve pump trucks if ready-mix trucks can't access the pour area directly.

When to Hire Professionals

This project requires professional concrete contractors experienced with agricultural construction. The excavation, grading, and concrete placement demands exceed typical homeowner capabilities. Rural barn floors also involve considerations around equipment loads, drainage integration with existing farm infrastructure, and coordination with agricultural schedules.

Find experienced concrete contractors through the New Brunswick Construction Network who understand rural NB conditions and agricultural concrete requirements. Get quotes from contractors familiar with Carleton County's soil conditions and seasonal access challenges.

Looking for experienced contractors? The New Brunswick Construction Network connects homeowners with qualified professionals:

- C&A Masonry Inc.
- PERMA-DRY
- Thirty Four Renovations
- Happy Home Enterprises Inc
- alka masonry

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Q3

Do I need to hire an electrician before pouring a heated concrete floor in my Fredericton garage?

Yes, absolutely — electrical work must be completed and inspected before any concrete is poured for a heated garage floor. The radiant heating system (whether electric cables or hydronic tubing) gets embedded directly into the concrete slab, making it impossible to access for repairs or modifications once the pour is complete.

Electrical Requirements and Timing

For electric radiant floor heating, your electrician needs to install a dedicated 240V circuit from your electrical panel to the garage, sized appropriately for your heating load (typically 15-20 watts per square foot for a garage). The circuit must include GFCI protection as required by the Canadian Electrical Code. In Fredericton, this electrical work requires a permit and inspection before the concrete pour — the electrical inspector needs to verify proper circuit sizing, GFCI protection, and cable routing before the system gets buried in concrete.

The heating cables or mats get installed on top of the vapor barrier and insulation, secured to wire mesh reinforcement that sits at mid-slab height (2-3 inches up in a 4-5 inch garage slab). Your electrician will run the power feed to a thermostat location and connect the heating elements, leaving the thermostat installation for after the concrete cures. The electrical rough-in inspection happens after the heating system is installed but before

concrete placement.

NB Climate Considerations for Heated Garage Floors

A heated garage floor makes excellent sense in Fredericton's climate, where garage temperatures can drop to -20°C or lower for extended periods. However, the concrete mix and installation must account for thermal cycling. Use air-entrained concrete (essential for all NB exterior-exposed concrete) and consider a slightly higher strength mix (32 MPa) to handle the expansion and contraction from heating cycles. The slab should include proper control joints every 8-10 feet to manage thermal movement.

Insulation under the slab becomes critical with radiant heating — without it, you're heating the ground instead of your garage. Install 2-3 inches of rigid foam insulation under the slab and around the perimeter to direct heat upward. In Fredericton's frost conditions, ensure your footing extends below the 4-foot frost line and that perimeter insulation prevents thermal bridging.

Professional Coordination Required

This project requires careful coordination between your electrician, concrete contractor, and potentially a heating system specialist. The electrical work, insulation installation, heating system placement, and concrete pour must happen in the correct sequence with proper inspections at each stage. Most concrete contractors in the Fredericton area have experience with radiant floor installations, but verify this when getting quotes — the timing and installation details are critical for a successful heated floor system.

Need help finding electrical contractors or concrete professionals experienced with radiant floor systems? The New Brunswick Construction Network can connect you with qualified trades for both aspects of this project.

Q4

Is fiber mesh reinforcement enough for a garage floor slab in Moncton's clay soil, or do you still need rebar for added strength?

Fiber mesh alone is not sufficient reinforcement for a garage floor slab in Moncton's clay soil conditions — you need proper structural reinforcement with rebar or welded wire mesh, with fiber as a beneficial supplement.

Clay soil presents unique challenges for concrete slabs in the Moncton area. Clay expands when wet and shrinks when dry, creating uneven support beneath your garage floor. During NB's spring thaw, clay soils become saturated and can shift or heave. In summer dry spells, clay shrinks and can create voids under the slab. This movement puts stress on concrete that fiber mesh simply cannot handle.

Fiber mesh serves a different purpose than structural reinforcement. Polypropylene or steel fibers (typically $15-$25 per cubic yard addition) help control plastic shrinkage cracking — the hairline surface cracks that appear in the first 24 hours as concrete cures. Fibers also improve impact resistance and reduce surface dusting. However, fibers are randomly distributed throughout the concrete and cannot provide the structural continuity needed to hold a slab together when clay soil movement causes cracking.

For a Moncton garage floor on clay soil, use welded wire mesh (6x6 W1.4/W1.4) as your primary reinforcement — about $3-$5 per 4x8 sheet. The mesh must be supported on chairs at mid-slab height (2-3 inches up in a 4-5 inch slab), not laid on the ground. This creates a continuous reinforcing grid that holds the slab together even when clay movement causes cracking. For larger garages or heavy vehicle loads, consider #10M rebar on 18-24 inch centers instead of mesh.

Clay soil also demands excellent drainage and base preparation. Install a minimum 6-inch compacted gravel base under the slab to create a stable, well-draining platform that won't shift with clay movement. Ensure positive drainage around the garage so water doesn't pool against the foundation and saturate the clay. Consider a vapor barrier (6-mil poly) over the gravel to prevent moisture wicking up from the clay into the concrete.

The combination approach works best — structural reinforcement (mesh or rebar) to handle clay soil movement, plus fiber mesh to reduce surface cracking and improve durability. A typical Moncton garage floor should be 4-5 inches thick with air-entrained concrete (essential for NB's 150+ freeze-thaw cycles), proper reinforcement, and a quality base. Budget $6-$10 per square foot for professional installation.

This is definitely professional territory — clay soil assessment, proper drainage, reinforcement placement, and concrete finishing require experience. A failed garage floor is expensive to replace and creates ongoing problems with vehicles, storage, and home value.

Need help finding a professional concrete contractor experienced with clay soil conditions? New Brunswick Concrete can match you with local professionals through the New Brunswick Construction Network.

Looking for experienced contractors? The New Brunswick Construction Network connects homeowners with qualified professionals:

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- Happy Home Enterprises Inc
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Q5

How thick should a garage floor slab be in New Brunswick?

A residential garage floor slab in New Brunswick should be a minimum of 4 inches thick, and 5 inches is strongly recommended if you park heavy vehicles, use the space as a workshop, or plan to apply an epoxy or polyaspartic coating. Thicker is better — the cost difference between 4 and 5 inches is modest, but the improvement in durability and resistance to cracking under NB's frost-heave conditions is meaningful.

The NB Building Code doesn't mandate a specific thickness for garage floor slabs the way it does for structural foundations, but industry best practice and local contractor experience both point to 4 inches as the minimum and 5 inches as the practical standard for anything beyond a basic, light-use garage. If you're planning to store a motorhome, run a woodworking shop with heavy equipment, or add a vehicle lift, 6 inches with heavier rebar is worth the extra investment.

The gravel base matters as much as the slab thickness. In New Brunswick, where frost penetrates 4–5 feet into the ground, a well-compacted granular base is essential to prevent frost heave from cracking the slab. A minimum 6-inch compacted granular B gravel base beneath the slab is standard, with 8–12 inches in areas with poor drainage or high water tables (common near the Saint John River valley in Fredericton or low-lying areas in Riverview and Dieppe). The gravel allows water to drain away from beneath the slab rather than freezing and lifting it.

Reinforcement for NB Garage Floors

A 4–5 inch garage slab should include **6x6 welded wire mesh** at minimum, supported on chairs at mid-slab height (not laid on the ground — mesh on the ground ends up at the bottom of the slab where it does almost nothing). For 5-inch or thicker slabs, or for heavier use applications, #10M rebar on 16-inch centres is a better choice. Reinforcement doesn't prevent cracking — nothing does — but it holds the slab together after cracks form and prevents sections from separating and lifting.

Control joints should be cut every 10–12 feet in both directions, to a depth of 1/4 of the slab thickness (1 inch for a 4-inch slab). These joints guide where cracking will occur, keeping it in straight lines that are easy to fill rather than random diagonal cracks across the slab.

For the concrete mix, specify **30 MPa (4,000 PSI) or higher with fibre reinforcement** for a garage slab. Garage floors face vehicle traffic, oil and chemical exposure, and NB freeze-thaw cycling near the door. An air-entrained mix is important for the portion of the slab near the garage door where freeze-thaw exposure occurs.

Typical cost for a two-car garage floor (400–500 sq ft) in NB runs **$3,000–$5,000** fully installed including gravel base, forming, concrete, and finishing. The slab alone is a small portion of that — the gravel base, prep work, and labour are the dominant costs. **New Brunswick Concrete can connect you with experienced garage floor contractors** across Moncton, Fredericton, Saint John, and surrounding areas.

Looking for experienced contractors? The New Brunswick Construction Network connects homeowners with qualified professionals:

- Thirty Four Renovations
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Q6

What is the best garage floor coating for NB winters?

For New Brunswick garages, a 100% solids polyaspartic coating is the best overall choice, combining durability, chemical resistance, and the ability to handle NB's temperature extremes better than any other coating type. That said, a well-applied 100% solids epoxy system is a close second and costs less — making it the most popular professional choice in NB for homeowners who want excellent performance without the premium price of polyaspartic.

NB winters create a specific set of challenges for garage floor coatings that you don't face in milder climates. Every vehicle you drive in from a Fredericton or Moncton winter brings in road salt, de-icing brine, and ice melt — then that salty, acidic water puddles on your floor as the snow and slush melt. The coating needs to be:

- **Chemical resistant** to road salt, calcium chloride, and motor oil
- **Impact resistant** for dropped tools and the repeated thermal shock of hot tires on a cold floor
- **UV stable** if any sunlight reaches the floor (epoxy yellows with UV exposure; polyaspartic does not)
- **Moisture tolerant** during application, since NB basements and garages often have elevated humidity

  Epoxy coatings (100% solids, not water-based) check most of these boxes. A two-coat system with a clear topcoat provides excellent chemical and abrasion resistance. The main limitations are yellowing in UV-exposed areas, longer cure times (24–72 hours between coats), and sensitivity to moisture during application — epoxy applied to concrete with elevated moisture content will peel. Professional epoxy coating for an NB two-car garage runs **$1,600–$4,000** installed ($4–$8 per sq ft).

  Polyaspartic coatings are newer technology and perform better in several ways: faster cure time (some systems cure in 1–4 hours), better UV resistance (no yellowing), better temperature flexibility, and better tolerance to moisture in the substrate. The trade-off is higher cost ($6–$12 per sq ft professionally applied) and a faster working time that makes application less forgiving. For garages with windows or natural light exposure, polyaspartic's UV stability is a clear advantage.

  Water-based epoxy kits from hardware stores are a distant third — they look similar on the shelf but are significantly diluted. The film thickness is thin, adhesion is weaker, and durability in NB conditions is poor. They typically last 2–5 years before peeling, compared to 10–20 years for quality 100% solids systems.

  One important rule for NB garage floors: Concrete must be at least 28–30 days old and tested for moisture vapour emission before coating. New concrete that cures over an NB winter retains moisture for months. Applying coating to wet concrete is the leading cause of premature delamination.

  If your garage is heated in winter, either epoxy or polyaspartic works well. If your garage is unheated and temperatures swing dramatically, polyaspartic's flexibility is an advantage. **New Brunswick Concrete can connect you with professional floor coating contractors** in your area for quotes and surface assessment.

Looking for experienced contractors? The New Brunswick Construction Network connects homeowners with qualified professionals:

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Q7

Epoxy vs polyaspartic garage floor coating — which is better for NB?

For New Brunswick conditions, polyaspartic has technical advantages over epoxy — but a properly installed 100% solids epoxy system is an excellent choice for most NB homeowners and costs 20–40% less. The right answer depends on your garage, your budget, and how the space is used.

Here's an honest side-by-side breakdown for NB conditions:

UV stability: Polyaspartic wins clearly. Standard epoxy yellows when exposed to UV light, which matters if your garage gets sunlight through windows or an open door. If your garage is interior-facing with no direct sun, this is less of a concern. Polyaspartic maintains its colour and gloss for years.

Temperature tolerance: Polyaspartic wins again. NB garages swing from -30°C in January to +35°C in July. Polyaspartic coatings have better flexibility across that range, which reduces microcracking in the coating layer over time. Standard epoxy becomes brittle at extreme cold temperatures.

Cure time: Polyaspartic is dramatically faster — some systems are dry to foot traffic in 2–4 hours and return to vehicle traffic in 24 hours. Epoxy typically requires 12–24 hours between coats and 72 hours before vehicle traffic. For homeowners who can't lose their garage for multiple days, polyaspartic's one-day installation is a real advantage.

Chemical resistance: Both resist road salt, motor oil, and de-icing chemicals well when applied at proper film thickness. High-solids epoxy and polyaspartic are comparable here for NB winter conditions.

Cost: Epoxy is less expensive. Professional epoxy coating for a two-car NB garage runs **$1,600–$4,000** ($4–$8 per sq ft). Professional polyaspartic runs **$2,500–$5,500** ($6–$12 per sq ft). DIY epoxy kits from building supply stores run $200–$600 for a two-car garage — though these water-based kits perform poorly in NB conditions and aren't truly comparable.

Working time: Polyaspartic has a faster pot life, meaning there's less time to work with it after mixing. Professional applicators handle this easily, but it's part of why polyaspartic installations are best left to experienced contractors.

Moisture sensitivity: Both require dry, properly prepared concrete. Concrete with elevated moisture vapour emission will cause either coating to delaminate. This is particularly important in NB garages where the floor may have higher moisture levels from snowmelt and ground moisture, especially in spring.

The honest recommendation: For most NB homeowners with an attached, unheated, or lightly heated garage, **100% solids epoxy with a polyaspartic topcoat** is a great middle-ground — you get epoxy's cost efficiency with the UV stability and abrasion resistance of a polyaspartic topcoat. Many professional NB contractors use this hybrid

approach.

If you have an unheated detached garage with significant temperature swings and sun exposure, full polyaspartic is worth the premium. **New Brunswick Concrete can match you with local floor coating professionals** who can recommend the right system after seeing your garage.

Looking for experienced contractors? The New Brunswick Construction Network connects homeowners with qualified professionals:

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Q8

Can I pour a new concrete floor over my old basement floor in NB?

Yes, you can pour a new concrete floor over your old basement floor in New Brunswick — but only if you address any moisture issues first and have adequate headroom to lose 2–4 inches of ceiling height. Skipping the moisture assessment before pouring is the most common mistake, and it results in delamination, efflorescence, and a damp floor that defeats the purpose of the project.

The first question is: why are you replacing the basement floor? If the answer is cracking, unevenness, or age, an overlay is a straightforward project. If the answer is dampness, musty smell, white mineral deposits on the surface, or visible moisture, the problem is below the floor — hydrostatic pressure, a failing or absent weeping tile system, or a high water table. Pouring new concrete over a wet floor without addressing the source seals the moisture in temporarily, but it will find its way back up through the new slab. In NB's river valley communities (Fredericton, Miramichi) and low-lying areas (parts of Riverview, Dieppe), subgrade moisture is a common issue that requires diagnosis before any floor work.

Minimum overlay thickness matters. You can't pour 1 inch of standard concrete and expect it to bond and hold. A self-levelling compound (also called SLC or underlayment) can go as thin as 1/4 inch over a properly prepared

surface, but it's not structural — it's a levelling product. For a structural concrete topping that can support foot traffic, furniture, and normal basement loads, you need a minimum of **2 inches** of polymer-modified concrete or a full **4-inch slab**. If your basement ceiling is already at the minimum for a finished space, losing 2–4 inches is significant.

What the Process Looks Like

A proper basement floor overlay in NB involves:

- **Addressing moisture first** — vapour barrier testing, weeping tile inspection if possible, and potentially installing a drainage mat or dimple membrane if any moisture is present
- **Preparing the existing surface** — mechanically grinding or shot-blasting to open the surface for bonding; removing any oil, paint, or sealers
- **Applying a vapour barrier** — a minimum 10-mil polyethylene vapour barrier over the existing slab before pouring the topping is standard practice for any basement floor in NB
- **Pouring the topping** — typically 2–4 inches of concrete with fibre reinforcement for crack resistance
- **Curing and sealing** — minimum 7-day curing, then a penetrating sealer

Cost for a basement floor replacement in NB runs **$8–$14 per square foot** fully installed. A typical 800 sq ft basement floor runs $6,400–$11,200 depending on the condition of the existing slab and whether moisture mitigation is needed.

For moisture issues, **New Brunswick Concrete can help you find waterproofing and concrete contractors** through the New Brunswick Construction Network — solving the root cause before the new floor goes down is always the right sequence.

Looking for experienced contractors? The New Brunswick Construction Network connects homeowners with qualified professionals:

- Happy Home Enterprises Inc
- Thirty Four Renovations
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Q9

How do I deal with moisture coming through my basement floor in New Brunswick?

Moisture coming through a basement floor in New Brunswick is almost always caused by hydrostatic pressure — water in the soil outside and beneath the foundation pushing up through the slab under pressure — and the solution requires addressing the water management system, not just the floor surface. Coating or sealing the floor without fixing the drainage is a temporary measure at best.

NB's climate creates several reasons why basement floor moisture is common. Spring thaw is the biggest one: when 4–5 feet of frozen ground thaws rapidly in March and April, the saturated soil around foundations generates significant hydrostatic pressure. River valley communities like Fredericton and Miramichi see this acutely during high water periods. Coastal communities near Saint John and the Bay of Fundy deal with persistently high water tables. And many older NB homes — particularly pre-1980 construction — have deteriorating clay tile weeping systems or no drainage at all.

Diagnosing the source is the critical first step. Not all basement floor moisture is the same:

- **Hydrostatic pressure** — water seeps up through the floor slab, often leaving white mineral deposits (efflorescence) on the surface. Gets worse after heavy rain or spring thaw.
- **Condensation** — moisture from warm humid air condensing on a cold concrete floor. Worse in summer when warm air enters a cool basement. Wipe the floor dry, tape plastic sheeting to the floor, and check after 24 hours: if moisture is under the plastic, it's coming through the slab. If it's on top, it's condensation.
- **Crack infiltration** — water finding a path through floor cracks rather than through the porous slab itself.

Solutions by Severity

For minor moisture or condensation: Improve basement ventilation, add a dehumidifier, and apply a penetrating concrete sealer to reduce moisture transmission through the slab. This works for condensation and very minor seepage.

For moderate hydrostatic pressure: A **French drain interior perimeter system** — also called an interior weeping tile — involves cutting a channel around the perimeter of the basement floor, installing a perforated drain pipe surrounded by gravel, and routing it to a sump pump. This doesn't stop water from entering but manages it before it reaches the floor surface. Cost in NB typically runs **$5,000–$15,000** for a full perimeter system with sump pit and pump installation.

For severe hydrostatic pressure or failed exterior drainage: Exterior waterproofing — excavating around the foundation, applying waterproofing membrane, and installing new weeping tile — addresses the problem at its source but is expensive ($5,000–$15,000 per wall face) and disruptive. In NB, this work should be done between May and October when the ground is accessible.

Grading and downspouts can't be overlooked: if your lot grades toward the foundation or downspouts discharge near the foundation, you're adding water to the problem. Extending downspouts 6 feet away from the foundation and regrading to slope away costs relatively little and makes a significant difference.

For persistent basement floor moisture, a professional assessment is essential — diagnosing the source correctly prevents wasted money on the wrong solution. **New Brunswick Concrete and the New Brunswick Construction Network** can help you find experienced waterproofing and concrete contractors in your area.

Looking for experienced contractors? The New Brunswick Construction Network connects homeowners with qualified professionals:

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Q10

What PSI concrete should be used for a garage floor in NB?

A garage floor in New Brunswick should be poured with a minimum 4,000 PSI (30 MPa) concrete mix, and many contractors specify 4,500 PSI (32 MPa) for added durability. Standard 3,500 PSI (25 MPa) concrete is appropriate for many interior applications, but a garage floor sees vehicle traffic, oil and chemical exposure, thermal shock from hot tires, and potentially freeze-thaw cycling near the door — all of which benefit from higher strength concrete.

In Canada, concrete strength is typically specified in megapascals (MPa) rather than PSI, so here's the conversion reference:

- 25 MPa = 3,625 PSI — general interior use, NOT recommended for NB garage floors
- 30 MPa = 4,350 PSI — standard for NB garage floors, suitable for typical residential vehicles
- 32 MPa = 4,641 PSI — preferred for heavier use, better chemical resistance, ideal for workshops
- 35 MPa = 5,076 PSI — commercial grade, used for heavy vehicle or industrial garage applications

For most NB homeowners with a standard two-car attached garage, **30 MPa (4,000 PSI) is the sweet spot** — it's widely available from NB ready-mix suppliers, provides excellent durability for passenger vehicles and light trucks, and costs modestly more than lower-strength mixes.

Critical Specifications Beyond PSI

Strength alone doesn't determine durability. For an NB garage floor, these specifications matter equally:

Water-to-cement ratio should be 0.45 or lower. A lower ratio means less water in the mix, which means fewer voids and better strength. Never allow water to be added to the truck at the jobsite — this raises the water-cement ratio and directly weakens the finished floor.

Air entrainment: The section of your garage floor near the door sees outdoor freeze-thaw conditions. An air-entrained mix (4–7% air content) is important for that zone. Some contractors pour the entire slab with air-entrained concrete for simplicity; others use non-air-entrained for the interior portions where maximum strength is preferred (air entrainment slightly reduces compressive strength at equivalent mix proportions).

Fibre reinforcement: Adding polypropylene synthetic fibres ($15–$25 per cubic yard added cost) reduces plastic shrinkage cracking and improves impact resistance. It's a good addition for garage floors and is specified more and more frequently by NB contractors.

Slump: Specify 4-inch slump for garage floors. A wetter mix is easier to pour but produces a weaker, more crack-prone slab. Resist the temptation to add water if the concrete seems stiff on a hot July day in Moncton —

ask the ready-mix driver to use a water reducer (superplasticizer) instead.

Ready-mix concrete in NB (delivered) costs **$190–$260 per cubic yard** depending on strength and admixtures. A two-car garage floor uses roughly 5–7 cubic yards. **New Brunswick Concrete can connect you with experienced garage floor contractors** who specify and order the right concrete mix for your project.

Looking for experienced contractors? The New Brunswick Construction Network connects homeowners with qualified professionals:

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Q11

How long does epoxy garage floor coating last in New Brunswick?

A professionally installed 100% solids epoxy garage floor coating in New Brunswick typically lasts 10–20 years with proper maintenance, while DIY water-based epoxy kits from hardware stores typically last 2–5 years before peeling or wearing through. The difference comes down to film thickness, bond strength, and product quality — not just how it's applied.

NB garages are harder on floor coatings than garages in milder climates. The combination of factors that shorten coating lifespan in NB includes:

- **Road salt and de-icing brine** tracked in from November through April
- **Hot tire pickup** — the thermal shock of hot tires from a heated vehicle on a cold NB garage floor can cause standard epoxy to lift, especially on humid summer days
- **Temperature cycling** from -30°C winter lows to +35°C summer highs in unheated garages
- **UV exposure** causing yellowing and chalking in any area that receives sunlight
- **Moisture vapour emission** from the concrete slab (common in NB garages, especially in spring)

What Determines Longevity

Surface preparation is the single biggest factor. Epoxy that bonds to properly ground or acid-etched concrete (CSP 2–3 profile) will outlast epoxy applied to a smooth or dirty surface by many years. Professional contractors use diamond grinding or shot blasting — this is why professional installations last 3–5 times longer than most DIY attempts.

Product quality: 100% solids epoxy (no solvent, no water carrier) applies at 15–20 mils dry film thickness. Water-based epoxy applies at 3–8 mils. That extra thickness translates directly to durability. Professional-grade 100% solids systems cost $80–$150 per gallon; hardware store kits are diluted formulations that look similar on the shelf.

Topcoat: A clear polyurethane or polyaspartic topcoat over the epoxy base significantly extends life by adding UV resistance and abrasion protection. Many professional NB contractors now offer hybrid systems — epoxy base, polyaspartic topcoat — that combine the adhesion of epoxy with the durability and UV stability of polyaspartic.

Maintenance: Annual cleaning with a pH-neutral cleaner and prompt cleanup of oil and de-icing chemicals extends coating life considerably. If your epoxy starts showing wear in high-traffic areas, a refresher topcoat applied over clean, lightly abraded existing epoxy can restore the surface without a full recoat — professional contractors typically offer this service.

A professional epoxy coating for a two-car NB garage runs **$1,600–$4,000** ($4–$8 per sq ft) installed. Amortized over 15 years, that's $100–$270 per year — a reasonable cost for a finished, protected garage floor. **New Brunswick Concrete can match you with local floor coating professionals** in Moncton, Fredericton, Saint John, and surrounding areas for quotes and product recommendations.

Looking for experienced contractors? The New Brunswick Construction Network connects homeowners with qualified professionals:

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Q12

Should I put vapour barrier under a basement floor slab in NB?

Yes — a vapour barrier under a basement floor slab is strongly recommended in New Brunswick and should be considered standard practice, not an optional upgrade. NB's variable water table, spring thaw conditions, and prevalence of older homes with subgrade moisture issues make below-slab vapour control an important step in any basement floor project.

The purpose of a vapour barrier is to prevent ground moisture from wicking up through the concrete slab by capillary action. Concrete is porous — even a solid, crack-free slab transmits moisture vapour from the soil below. Without a vapour barrier, this moisture can:

- Cause efflorescence (white mineral deposits) on the slab surface
- Prevent adhesive-applied flooring (vinyl, laminate, hardwood) from bonding properly
- Create conditions for mould growth under floor coverings
- Cause epoxy or polyaspartic coatings to delaminate
- Make the basement feel persistently damp

  In New Brunswick's river valley communities (Fredericton, Miramichi) and coastal areas (Saint John, Bathurst coastline), water tables can be high, making below-slab vapour control especially important. Even in well-drained areas, spring thaw sends large volumes of water into the soil, temporarily raising the water table and increasing vapour drive through basement slabs.

What Vapour Barrier to Use

The standard product is **10-mil polyethylene sheeting** ($0.15–$0.30 per sq ft) laid directly on the compacted gravel base, with seams overlapped by 12 inches and taped with vapour barrier tape. The poly goes under the concrete — not on top.

For situations with known moisture issues or below-grade slabs with high vapour emission rates, a **20-mil reinforced polyethylene** or a purpose-built vapour retarder membrane (like Stego Wrap) provides better protection. These products cost more ($0.50–$1.00 per sq ft) but are worth it for finished basement spaces.

Under gravel, then vapour barrier, then concrete is the correct sequence — the gravel provides drainage and capillary break, the vapour barrier stops vapour transmission, and the concrete goes on top. Some older NB construction reversed this (poly over compacted soil, gravel on top), which can trap moisture under the poly — the current best practice is poly directly under the slab on top of gravel.

If you're not sure whether vapour is an issue in your specific basement, do the plastic sheet test: tape a 2-foot square of poly to the floor, seal all edges with tape, and check after 48–72 hours. Condensation on the underside of the plastic means moisture is coming up through the slab — a vapour barrier under a new slab is essential in that scenario.

Adding a vapour barrier is inexpensive insurance for any basement floor project in NB. **New Brunswick Concrete can connect you with experienced concrete contractors** who know NB's ground conditions and will spec the right moisture protection for your situation.

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Q13

How do I level an uneven basement floor in a New Brunswick home?

Levelling an uneven basement floor in a New Brunswick home depends on the cause and degree of the unevenness — self-levelling concrete underlayment handles minor irregularities up to about 1.5 inches, while significant settlement or structural heaving requires more involved repair before any floor work. Diagnosing the cause first saves you from investing in a fix that won't last.

Common causes of uneven basement floors in NB homes:

Slab settlement — portions of the floor have sunk due to soil consolidation or voids beneath the slab. This is common in older Fredericton, Saint John, and Moncton homes where the original fill beneath the slab has settled over decades.

Frost heave — sections of the slab have been lifted by frost acting on poorly drained soil beneath. This typically affects slabs with insufficient or no gravel base. The heaved sections may be higher than the surrounding floor.

Original pour variation — many older NB basement slabs were simply poured without careful screeding and have always been uneven. This is the easiest to fix.

Active moisture or drainage issues — if the unevenness is accompanied by moisture, the drainage problem must be solved before any levelling work.

Levelling Methods

Self-levelling compound (SLC): For depressions and low spots up to 1.5 inches, self-levelling underlayment is the most practical solution. Products like Ardex K-15 or Mapei Ultraplan flow into low areas and level themselves. They can be walked on in 2–4 hours and are ready for flooring in 24 hours. The concrete surface must be primed first. Cost is roughly **$0.50–$1.50 per sq ft** for materials; professional installation adds $2–$4 per sq ft.

Grinding high spots: If sections are raised above the general floor level (frost heave), a concrete grinder removes the high spots. Floor grinders are available at tool rental outlets in Moncton, Fredericton, and Saint John. Grinding is dusty work — use proper respiratory protection.

Mudjacking or poly levelling: If entire sections have settled significantly (2 inches or more), foam injection (poly levelling) through small holes drilled in the slab can lift settled sections back to level. Cost runs **$3–$10 per sq ft** depending on the extent of lifting required. This is professional work with specialized equipment.

Full slab replacement: For floors with extensive settlement, active frost heave, or major cracks, removing and replacing the slab is sometimes the only durable fix. This allows proper gravel base installation (6–8 inches compacted granular B) and a properly specified new slab.

For floors in NB homes older than 40 years, check whether the floor is adequately thick before grinding — older slabs sometimes are only 2–3 inches thick, leaving little room to remove material. **New Brunswick Concrete can match you with local concrete professionals** who can assess your floor and recommend the right levelling approach for your situation.

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Q14

Can I install radiant floor heating in a concrete basement floor in NB?

Yes, radiant floor heating works very well in a concrete basement floor in New Brunswick, and concrete is actually the ideal material for a radiant system because its thermal mass stores and releases heat efficiently. NB's cold winters make radiant floor heating particularly effective — a warm floor combats the chill that rises from below-grade spaces even in well-insulated basements.

There are two main types of radiant floor systems installed in NB basement floors:

Hydronic (water-based) radiant heating uses cross-linked polyethylene (PEX) tubing embedded in or beneath the concrete slab, circulating warm water from a boiler. This is the most energy-efficient option for long-term heating and works well for full basement living spaces. The tubing is tied to the rebar or mesh grid and encased in the concrete pour. The system requires a boiler or water heater, circulation pump, manifold, and thermostat controls. Installation cost for the in-floor portion runs **$6–$15 per sq ft** for the tubing and concrete, plus $3,000–$8,000 for the mechanical components (boiler, pump, controls) depending on system size.

Electric radiant heating mats use embedded electric resistance cables beneath or within the floor slab. Lower installation cost ($3–$8 per sq ft installed), but higher operating costs than hydronic systems due to electricity rates

in NB. Better suited for supplemental heating in bathrooms or smaller spaces rather than whole-basement heating.

NB-Specific Considerations

Insulation below the slab is critical. For NB basement floors, a minimum 2-inch layer of rigid foam insulation (R-10) beneath the concrete slab prevents heat from radiating downward into the ground rather than upward into the living space. Without underslab insulation, a significant portion of your heating energy heats the soil, not your basement. In New Brunswick, where heating costs are a real concern, skipping underslab insulation turns a smart heating investment into an expensive inefficiency.

Concrete mix and thickness: A radiant slab should be **4–5 inches thick** at minimum over the tubing, using a mix in the 30 MPa range. The slab must cure for a minimum of **28 days** before the radiant system is activated — and the first heat-up should be gradual (increase temperature by 5°C per day) to avoid thermal shock cracking while the concrete is still releasing curing moisture.

Control joints: Radiant slabs still need control joints, but they should be planned carefully to avoid cutting the PEX tubing. Your contractor will map the tubing layout and cut joints around the tubes, not through them.

Permits: Adding radiant heating to a basement floor in NB generally requires a building permit as part of a basement renovation — the mechanical system (boiler, electrical connections) will require inspections. Confirm with your local building office in Moncton, Fredericton, or Saint John.

For a properly designed and installed system, radiant heated concrete floors in NB basements are one of the most comfortable and efficient heating choices available. **New Brunswick Concrete can help you find experienced concrete contractors** familiar with radiant slab installation in your area.

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Q15

What gravel base is needed under a garage floor slab in New Brunswick?

A garage floor slab in New Brunswick requires a minimum 6-inch compacted granular B gravel base, and 8–12 inches is better in areas with poor drainage, high clay content soil, or elevated water tables. The gravel base is not just a construction step — it's the difference between a garage floor that stays flat for 30 years and one that cracks and heaves within a decade.

NB's frost depth of 4–5 feet means the soil beneath your garage floor freezes and thaws every year. When water-saturated soil freezes, it expands. That expansion — frost heave — pushes upward against anything above it, including your concrete floor slab. A properly installed granular base does two critical things: it drains water away from beneath the slab so there's less water to freeze, and it provides a stable, uniform bearing surface that reduces differential movement.

Granular B (also called crusher run, bank gravel, or processed gravel) is the standard material for slab sub-base in NB. It's a well-graded mix of crushed stone and fines that compacts tightly and drains well. Avoid using topsoil, native clay, or organic material beneath a slab — these compress under load and retain moisture.

What the Process Looks Like

- **Excavation:** The area is excavated to the required depth. For a new garage, this usually means excavating 12–18 inches below the desired finished floor elevation to accommodate the gravel base plus slab thickness.
- **Compaction of subgrade:** The exposed native soil must be compacted with a plate compactor or jumping jack before gravel goes in. Soft, disturbed, or organic spots must be removed and replaced with compacted granular material.
- **Gravel installation:** Granular B is placed and compacted in **lifts no thicker than 6 inches** per lift. Dumping all the gravel in at once and compacting the top produces a slab that settles — each lift must be compacted before the next goes in. This is where many DIY projects go wrong.
- **Vapour barrier:** A 10-mil poly vapour barrier goes over the compacted gravel base before concrete is poured. This prevents ground moisture from wicking through the slab.

  For garages in areas with known drainage problems — low-lying properties in Riverview, Dieppe, or the Moncton lowlands, river valley locations in Fredericton or Miramichi — a perimeter French drain around the garage or a layer of **4-inch clear stone** (drainage stone with no fines) as the bottom layer beneath the granular B significantly improves drainage performance.

The cost for gravel base preparation in NB runs **$2–$4 per sq ft** for material and compaction. For a 500 sq ft two-car garage, that's $1,000–$2,000 — a small investment relative to the total project cost that has an outsized effect on how long the floor lasts. **New Brunswick Concrete can connect you with garage slab contractors** who understand NB soil conditions and will prepare the base properly.

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Q16

How do I prepare a garage floor for epoxy coating in NB?

Properly preparing a garage floor for epoxy coating is 80% of the job — the coating itself goes on quickly, but inadequate surface preparation is the reason most epoxy coatings fail prematurely in NB garages. The concrete must be clean, open-pored, and dry for epoxy to bond reliably through NB's winters.

Step 1: Test for Moisture

Before anything else, test for moisture vapour emission. Tape a 2-foot square of plastic sheeting to the floor with all edges sealed, and leave it for 24–48 hours. Condensation on the underside means significant moisture is coming through the slab — a problem that must be addressed before epoxy, or the coating will delaminate. NB garages, particularly over basements or in areas with high water tables (Riverview, parts of Moncton), often have elevated moisture. New concrete must cure for **at least 28–30 days** in NB conditions before epoxy application — longer in cool weather.

Step 2: Clean Thoroughly

Remove oil stains using a concrete degreaser. Oil contamination is the second most common cause of epoxy failure — even old, invisible oil residue from a car parked for years will prevent proper adhesion. For fresh stains, apply degreaser, scrub with a stiff brush, rinse thoroughly, and allow to dry completely. For old, deep oil penetration, you may need to apply degreaser multiple times or accept that heavily contaminated spots won't hold epoxy as well as clean concrete.

Step 3: Open the Surface (Most Critical Step)

Epoxy does not bond to a smooth concrete surface — it needs a texture equivalent to 60-grit sandpaper (Concrete Surface Profile 2–3). There are two ways to achieve this:

Diamond grinding (professional method) — a floor grinder with diamond tooling physically removes the surface laitance and opens the concrete pores. This is the most reliable method and what professional NB coaters use. Equipment rental is available but requires skill to avoid grinding unevenly.

Acid etching (DIY method) — muriatic acid diluted in water (10% solution) etched onto the floor, scrubbed, neutralized with baking soda and water solution, rinsed thoroughly, then allowed to dry for 24 hours minimum. Acid etching works on porous concrete but is less effective on hard, dense concrete and does nothing on any previously sealed surface. It also generates fumes and requires proper PPE (chemical-resistant gloves, eye protection, respirator).

Do not coat over an existing painted or sealed floor without grinding — epoxy applied over existing coatings will peel with the old coating, not bond to the concrete.

Step 4: Fill Cracks and Holes

Fill cracks wider than 1/8 inch and any spalled areas with an epoxy crack filler or polyurea joint filler before coating. Allow to cure per product instructions.

Step 5: Apply in the Right Conditions

For NB garages: apply epoxy when floor temperature is between 10°C and 30°C, relative humidity is below 85%, and rising temperatures are expected (not falling — falling temperatures condense moisture on the floor). Avoid application on rainy days when humidity is high. Late spring through early fall is ideal in NB.

For DIY application, a two-car garage floor preparation takes a full day. The coating goes on the next day. **New Brunswick Concrete can match you with professional floor coating contractors** across NB if you prefer a guaranteed result with proper equipment.

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