NEW BRUNSWICK RENOVATIONS

Structural Work

Structural renovations including load-bearing walls, beams, foundation repair, framing, and engineering requirements in NB

12 Expert Answers from Reno IQ

newbrunswickrenovations.com/construction-brain

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Q1

How do I know if a wall is load-bearing in my New Brunswick home?

Identifying a load-bearing wall requires looking at how the house is framed — and in many NB homes built before the 1980s, that means digging into the basement or attic to trace how weight travels from the roof to the foundation. Getting this wrong and removing the wrong wall without proper support is one of the most costly structural mistakes a homeowner can make, so it's worth spending the time to understand the clues before swinging a sledgehammer.

The most reliable indicator is direction relative to the floor joists. Load-bearing walls typically run **perpendicular to the floor joists**, transferring the weight of the structure above down to the foundation or a beam below. If you can access your basement or crawlspace, look at which way the joists run — a wall running across them is almost certainly structural. Walls running parallel to joists are often partition walls, though not always. Centre walls running the full length of a house from front to back are nearly always load-bearing, as they support the ridge beam or floor system above.

In the attic, look for where roof rafters or engineered trusses land. Bearing points at the top of walls indicate load transfer. In older NB homes with balloon framing (common in homes built before the 1950s, especially in Fredericton and Saint John's older residential neighbourhoods), studs can run continuously from the foundation sill to the roof, which changes how loads distribute compared to modern platform framing. These older framing systems require particular care to assess correctly.

Other practical clues: walls directly above basement beams or posts are almost always load-bearing. Walls with a double top plate (two horizontal boards at the top instead of one) are another indicator, though not definitive. Walls with posts, columns, or a beam visible in the ceiling above them are structural by design. Openings that already have a large header (a heavy horizontal member above the door or opening) indicate someone previously recognized the wall's structural role.

NB's housing stock adds a layer of complexity. Many homes from the 1940s through 1970s used non-standard framing based on the availability of local timber — Atlantic spruce and fir in various dimensions rather than today's standardized dimensional lumber. What looks like a simple partition wall in a Moncton bungalow from 1955 might be carrying loads that a modern builder would handle differently. Heritage homes in Saint John and Fredericton in particular often have structural systems that defy simple rules of thumb.

The only way to be certain is to have a **licensed structural engineer or experienced renovation contractor** assess the wall before any work begins. This typically costs $300-$600 for a site visit and written assessment — money exceptionally well spent when the alternative is a collapsed floor system or a sagging roofline. If you're planning any wall removal as part of a renovation, building permits will be required, and the municipality or RSC will

want to see an engineered drawing specifying the replacement beam size and support requirements.

For planning purposes, assume every wall is potentially load-bearing until proven otherwise by someone with structural knowledge and eyes on the framing. This isn't overcaution — it's the approach that keeps NB homeowners out of expensive and dangerous situations. Need help finding an experienced renovation contractor in your area who can assess your home's structure before demolition begins? New Brunswick Renovations can connect you with local professionals for free.

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Q2

How much does it cost to remove a load-bearing wall in a New Brunswick home?

Removing a load-bearing wall in a New Brunswick home typically costs $5,000 to $15,000, with most projects landing in the $7,000 to $12,000 range — depending on the wall's length, the size of beam required, how the existing structure needs to be supported during the work, and whether electrical, plumbing, or HVAC runs through that wall.

The cost breakdown for a typical load-bearing wall removal has several distinct components. **Engineering fees** run $600 to $1,500 in NB — a licensed structural engineer must assess the wall, calculate the required replacement beam size, and stamp drawings for the building permit. This is not optional and is money extremely well spent. **Permit fees** in NB municipalities typically add $100 to $400 depending on your local building department. **The beam itself** is often the biggest variable cost. A 10-foot LVL (laminated veneer lumber) beam to span a kitchen opening might cost $400 to $800 for materials; a 20-foot glulam beam to open up a full living room-to-dining room connection could run $1,500 to $3,500 for materials alone. Steel I-beams cost more but may be specified for longer spans or heavy loads.

Temporary wall construction while the permanent work is done adds labour cost, as does modifying the bearing points in the basement or crawlspace to properly transfer the new load. Most load-bearing wall removals require

adding a post, doubled-up stud pack, or column at each end of the new beam to carry the load down to the foundation — if the foundation point doesn't already exist, that's additional structural work. Electrical circuits running through the wall need to be rerouted by a licensed electrician (TSANB licensed), plumbing needs to be moved by a licensed plumber, and HVAC ducting rerouted by a sheet metal contractor. Each of these add $500 to $2,000 depending on complexity.

Finishing costs on top of structural work are significant and often underestimated. After the wall is out and the beam is in, you're looking at new drywall on the ceiling where the old wall met, patching and painting, flooring transition work where the old wall once sat, and potentially new lighting in the opened space. These finishing costs add $2,000 to $6,000 for a typical project. A complete budget for removing a load-bearing wall in a Moncton or Fredericton home, from engineering through finished space, should realistically plan for **$8,000 to $18,000** total.

NB's older housing stock adds potential complications. Pre-1980 homes commonly have **knob-and-tube wiring or aluminum wiring** running through walls that need proper handling, which increases electrical costs. Original plaster walls (common in homes built before the 1960s) require more careful patching than modern drywall, and matching original plaster textures adds skilled-labour cost. Homes with older solid-wood framing in non-standard dimensions may require custom beam connections rather than standard hardware.

Budget 15 to 20% contingency beyond your contractor's quote for this type of project. Hidden conditions are common — rotted or undersized existing framing at bearing points, unexpected wiring or plumbing in the wall cavity, or subfloor damage where the wall footing sat. These are discovered after demolition begins, not before.

Always get **three written quotes** from experienced contractors, confirm they're pulling the required permits, and verify their WorkSafeNB coverage before signing anything. A wall removal done with proper engineering and inspections protects your home's value and your insurance coverage; one done without permits creates serious complications at resale and voids your insurance for related claims. Browse renovation professionals in your area through the New Brunswick Construction Network directory.

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Q3

Do I need an engineer to remove a wall during a renovation in NB?

Yes — if the wall is load-bearing, New Brunswick's building code requires a structural engineer's assessment and stamped drawings before any removal work can proceed, and the building permit office will not issue the permit without it. This is not a bureaucratic formality; it's the calculation that determines whether the beam replacing your wall will actually hold the weight above it for the next 50 years.

The engineer's role in a wall removal project is specific and essential. They assess the load path from the roof or upper floor down through the wall being removed, calculate the required beam size (width, depth, species, and grade of lumber or the equivalent in LVL or steel), specify the bearing point requirements at each end of the beam, and confirm that the foundation beneath the new posts can handle the concentrated load. They then produce stamped drawings that your contractor works from and that the building inspector uses to verify the work was done correctly.

In New Brunswick, a structural engineering site visit and stamped drawing package for a residential wall removal typically costs **$600 to $1,500**, sometimes more for complex situations involving long spans, heavy upper-floor loads, or existing structural conditions that need addressing. Some engineering firms offer preliminary remote consultations for a lower fee before committing to a full assessment. This is worth doing early in your planning process to understand what you're dealing with before you've committed to a contractor or timeline.

For **partition walls** — walls that carry no structural load — you technically don't need an engineer. But here's the honest challenge: definitively identifying which walls are partition walls in an older NB home requires the same kind of knowledge and access that makes an engineer valuable in the first place. Many experienced renovation contractors can identify obvious partition walls with confidence, and a good contractor's assessment can save you engineering fees on straightforward cases. However, if there is any doubt — any at all — spending $600 on a structural engineer's opinion is far cheaper than discovering mid-demolition that the wall was carrying load.

NB's building permit process enforces this properly. When you apply for a building permit to remove a wall (which is required whenever structural modifications are made to a home), the municipality's building inspector will review the scope of work. For any load-bearing wall, they will require engineered drawings. If you proceed without a permit and without engineering, you're creating a serious liability: your home insurance may deny claims related to the structural modification, and when you sell your home, the lack of permit history for structural work is a material disclosure issue that sophisticated buyers and their home inspectors will catch.

The practical advice is simple: **hire a contractor experienced in structural renovations, have them identify whether the wall is load-bearing, get the engineer in before finalizing your budget, and pull the permit.** The engineering and permit cost adds $700 to $2,000 to your project but protects a $300,000 to $600,000 asset and

ensures the work is done safely. The alternative — saving that money and hoping the wall wasn't structural — has produced some very expensive outcomes in NB homes over the years.

For straightforward partition wall removals in clearly non-structural locations (a closet wall, an interior bathroom partition, a small bedroom divider that clearly runs parallel to the floor joists and has no load above), an experienced contractor's assessment is often sufficient. When in doubt, call the engineer. It's the kind of decision that experienced project managers make reflexively, and it's one of the reasons their renovations don't end up as cautionary tales.

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Q4

What are the signs of foundation problems in a New Brunswick home?

Foundation problems in NB homes show up as a pattern of related symptoms — no single crack or gap is definitive, but when several appear together, they're telling you the ground beneath your home is moving in ways the structure isn't accommodating well. Given that New Brunswick experiences over 100 freeze-thaw cycles per year and frost depths reaching 4 to 5 feet, foundation movement is one of the most common structural concerns homeowners face across the province.

The clearest visible indicators are cracks in the foundation walls themselves. **Horizontal cracks** in poured concrete or block foundation walls are the most serious type — they indicate lateral soil pressure pushing inward, which means the foundation wall is in bending stress. These require professional assessment promptly. **Stair-step cracks** following the mortar joints in block foundations are common in NB and often indicate differential settlement — one part of the foundation moving more than another. **Vertical cracks** are generally less alarming and often result from normal concrete curing shrinkage, but they should still be monitored for widening or water infiltration. Cracks wider than 6 mm (about a quarter-inch), cracks with one side displaced relative to the other (offset cracks), or cracks that are actively growing are all serious warning signs.

Inside the home, look at **door and window operation**. Doors that suddenly stick in their frames, won't latch properly, or show gaps at the top corners are responding to frame racking as the structure shifts. Windows that crack without impact, bind in their tracks, or develop gaps in their frames tell the same story. **Diagonal cracks running from the corners of windows and doors toward the ceiling** in drywall or plaster are a classic signature of differential foundation settlement — the wall is racking and the stress concentrates at the weakest points (corners of openings).

Floors that slope, bounce, or feel spongy can indicate foundation settlement pulling the structure out of level, or failed floor framing members due to moisture damage associated with a failing foundation. A marble rolled across the floor rolling consistently in one direction isn't just a quirk of an old house — it's worth investigating. In NB's older housing stock (1900s through 1960s), many homes were built on rubble stone foundations or early poured concrete that has reached the end of its functional life and is actively deteriorating.

Basement moisture and water infiltration are both a symptom and a cause of foundation problems. Water following the same crack every spring snowmelt season is eroding the concrete, leaching calcium from the matrix (visible as white efflorescence staining), and expanding and contracting with freeze-thaw cycles inside the crack itself. What starts as a hairline crack becomes a significant gap over 20 years of NB winters without intervention.

Outside the home, **gaps between the foundation and the sill plate or rim joist**, visible movement in attached structures like porches and decks (which often have shallower footings and move differently than the main

foundation), and ground that has settled or pulled away from the foundation wall are worth noting.

The critical rule with foundation concerns is this: **do not finish or renovate a basement that shows active foundation movement without having a structural engineer assess it first.** The assessment typically costs $500 to $1,200 in NB and will tell you whether you're dealing with normal settlement that's stabilized, active movement requiring remediation, or something in between. Foundation repairs in NB range from $3,000 to $8,000 for crack injection and drainage improvements to $25,000 to $60,000 for major underpinning or full foundation replacement — knowing which category you're in before planning a $40,000 basement renovation is money-saving common sense. For detailed basement waterproofing and foundation guidance, New Brunswick Basements at newbrunswickbasements.com has in-depth coverage of this topic.

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Q5

How much does foundation repair cost in New Brunswick in 2026?

Foundation repair costs in New Brunswick in 2026 range from as little as $2,000 for basic crack injection on a minor poured-concrete crack to $25,000 to $60,000+ for major underpinning, wall reconstruction, or full drainage system installation. The wide range reflects the enormous variety of foundation conditions across NB's housing stock — everything from 1960s poured concrete bungalows to 1890s rubble stone foundations in older Saint John and Fredericton neighbourhoods.

For **minor poured-concrete crack repairs**, polyurethane or epoxy injection seals active water-infiltrating cracks from the interior. This is a relatively affordable intervention at **$500 to $2,500** depending on crack length and number of injection ports required, and it's often the right solution for isolated vertical or diagonal cracks that haven't shown significant widening over time. The limitation is that injection repairs address the symptom (water infiltration) without resolving underlying drainage or soil pressure issues — if those causes aren't corrected, new cracks can develop.

Interior waterproofing systems — a perimeter drain tile system installed along the interior base of the foundation wall, directing water to a sump pit and pump — are the most common comprehensive solution for NB basements with chronic moisture. Installed cost for an interior drainage system with sump pump runs **$8,000 to $18,000** for a typical NB basement, depending on square footage, basement perimeter length, and whether the floor needs to be broken and replaced. This system manages water that gets through the foundation rather than stopping it from entering, which makes it effective but not a structural repair if there's actual wall movement.

For **horizontal cracks and inward wall movement** — the more serious structural concern — carbon fibre strap reinforcement or wall anchor systems are commonly used to stabilize block or poured concrete walls that are bowing inward under soil pressure. Carbon fibre straps installed across a bowing wall section cost **$400 to $700 per strap**, and a typical wall repair requires 5 to 10 straps, putting total cost at **$4,000 to $10,000** for the wall stabilization work. Wall anchors, which use a helical anchor plate buried in the soil outside and connected to the interior wall, run similar costs and have the advantage of potentially being tightened over time to pull the wall back toward plumb.

Exterior waterproofing — excavating around the foundation to apply membrane waterproofing, new drainage board, and weeping tile — is the most thorough approach and addresses the water before it reaches the wall. Exterior waterproofing costs **$15,000 to $30,000** for a typical NB home with full perimeter excavation, more for homes with decks, landscaping, or walkways that need to be removed and restored. This work is typically only justified for severe cases or when major exterior work is already planned.

Underpinning — deepening or reinforcing existing footings to stabilize a settling foundation — runs **$20,000 to $50,000** for a residential project in NB, and full foundation replacement on an older home can reach **$50,000 to $80,000** or more, including the structural lift, temporary support, new foundation pour, and backfill. These major interventions are reserved for cases of significant differential settlement or failed original foundations.

NB's climate makes proactive foundation care particularly valuable. Spring snowmelt from April through June pushes significant hydrostatic pressure against foundations across the province — if you notice new moisture, cracks, or seepage after the spring thaw, that's your annual inspection reminder. **Get a structural engineer's assessment** ($500 to $1,200) before committing to any repair approach; different problems require different solutions, and some contractors will recommend the solution they specialize in rather than the one best suited to your situation. Budget 15 to 20% contingency on top of quoted repair costs, as excavation work in particular often reveals additional conditions once the foundation wall is exposed. Find experienced local contractors through the New Brunswick Construction Network directory.

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Q6

How deep do footings need to be for a renovation in New Brunswick given the frost line?

In New Brunswick, footings for permanent structures must be placed a minimum of 4 to 5 feet below finished grade to get below the frost line — and this is one of the most strictly enforced requirements in the NB building code for good reason. NB's 100+ annual freeze-thaw cycles create enormous uplift forces when water in the soil freezes and expands; any footing above the frost line will heave, settle unevenly, and eventually cause structural damage to whatever it's supporting.

The specific frost depth requirement varies somewhat by location within the province. The NB Building Code uses regional frost depth maps, but as a practical rule, **4 feet (1.2 metres) is the absolute minimum** in southern NB communities like Saint John, Moncton, and Sussex, while **4.5 to 5 feet (1.4 to 1.5 metres)** is standard for northern NB including Edmundston, Campbellton, and Bathurst, where winters are longer and colder. Your local building department or RSC will specify the required depth for your exact location when you pull a permit — always confirm the local requirement before any footing excavation begins.

This footing depth requirement applies to **any permanent structure**: home additions, attached garages, covered porches, sunrooms, and any structure connected to the main dwelling or bearing significant loads. It's also why attached decks that are part of a permanent addition require engineered footings at frost depth, while freestanding wood decks may be permitted with surface-mounted or helical pile systems in some jurisdictions depending on their design and the local authority's requirements.

The practical implications for renovation projects are significant. A single-storey addition in Fredericton requires footing excavation down to at least 4 feet, which means substantial hand or machine digging before the first concrete is poured. In NB's clay-heavy soils (common in the Saint John River valley and along the coast), this excavation can encounter challenging ground conditions. **Footings must be poured on undisturbed, frost-free, load-bearing soil** — not fill, not disturbed soil, and never when the subgrade is frozen. This is why addition

footings in NB should be poured from June through September: sustained ground temperatures are necessary for concrete to cure properly, and pouring footings in cold conditions risks frost heave before the concrete reaches full strength.

Concrete for footings must also be properly sized relative to the load it carries. The NB Building Code specifies minimum footing widths based on soil bearing capacity and the load above. A typical residential footing for a single-storey addition is often 24 inches wide and 8 to 10 inches thick on standard NB soil, but this should be engineered for your specific project and soil conditions. Areas with loose or fill soils may require wider or deeper footings, or soil engineering to confirm bearing capacity.

For **interior basement posts and columns**, a concrete pad footing at the base of the column is required, sized to distribute the point load across the bearing area. These interior footings are below the frost line already (being inside the conditioned basement), so frost depth isn't the concern — it's adequate bearing capacity for the column load above.

If you're adding a sunroom, garage, or attached structure as part of a whole-home renovation, **never accept a contractor's proposal to use surface footings, deck blocks, or compacted gravel pads** as the foundation system for a permanent attached structure. In NB's climate, these approaches produce movement that damages the connection point between the addition and the main structure within a few years. Properly engineered frost-depth footings are not a luxury — they're the difference between a permanent addition and a very expensive repair project five years from now. Always ensure your contractor is pulling the required building permit; the inspection process is what catches improper footing depth before the concrete is poured and the problem is buried.

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Q7

What is the cost of installing a new beam when opening up a floor plan in NB?

Installing a new structural beam when opening up a floor plan in a New Brunswick home typically costs $4,000 to $12,000 for the complete structural work — beam, posts, modified bearing points, temporary shoring, and labour — before any finishing costs are factored in. The range is wide because beam size, span, load conditions, and what's in the walls being opened all vary considerably from one project to the next.

The beam itself is the most variable cost component. A **10-foot LVL (laminated veneer lumber) beam** to span a typical kitchen-to-dining room opening on a single-storey home might cost $500 to $1,000 for materials; a **20-foot glulam beam** spanning a full open-concept living area in a two-storey home could run $2,500 to $5,000 in materials. Steel I-beams (W-section or HSS) are specified for longer spans or very heavy loads and typically cost more than engineered wood products, plus they require specialized equipment for handling and installation. The engineer determines the required size based on the span length, the load from above (one floor vs. two floors, roof load, snow load), and the lumber species and grade specified.

Labour for beam installation in NB runs $1,500 to $4,000 for a typical residential project. This includes building and installing temporary shoring walls on both sides of the opening (to carry the load while the permanent wall and framing are removed), cutting out the structural wall, installing the beam with proper bearing at each end, and building the post assemblies that carry the beam load down to the foundation. The temporary shoring phase is critical work that cannot be cut short — improperly shored openings during renovation have caused partial floor collapses in older homes.

The **bearing point situation** at each end of the beam significantly affects cost. If the existing framing below already has a clear path to transfer load — a doubled joist below, a wall directly below in the basement — installing the new posts is straightforward. If the beam end lands in the middle of a basement span, a new steel column and pad footing may need to be added ($800 to $2,000), or an existing floor beam may need to be reinforced. This is something the structural engineer identifies in their assessment, which is why engineering must come before budgeting for this type of work.

Electrical and HVAC in the wall add predictable costs. Almost every interior wall in an NB home has at least one electrical circuit running through it; many have multiple. A licensed electrician needs to reroute those circuits before the wall comes down — budget $500 to $1,500 for electrical work. HVAC supply or return ducts running through the wall require a sheet metal contractor to relocate them, typically $400 to $1,200 depending on complexity.

Finishing costs on top of the structural work are substantial. New drywall on the ceiling where the wall met it, patching and painting throughout the affected area, new lighting for the opened space, flooring patching where the old wall sat, and trim and millwork updates typically add **$3,000 to $8,000** for a complete, finished result. A full

open-concept conversion project — structural work plus all finishing — should be budgeted at **$10,000 to $25,000** for most NB homes, with the higher end reflecting two-storey homes, longer spans, complex framing conditions, or premium finishes.

Engineering and permit costs are not optional and should be in every budget: structural engineering runs $600 to $1,500, and building permits add $100 to $400 depending on your municipality or RSC. These are investments in doing the project correctly and protecting your home's resale value and insurance coverage. Always get three written quotes, confirm WorkSafeNB coverage, and verify the contractor is pulling the required permit — beam work without permits creates real problems at resale in NB's market. Get connected with experienced local contractors for a free estimate on your project.

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Q8

How do I fix a sagging floor in an older New Brunswick home?

A sagging floor in an older NB home almost always traces back to one of three causes: failed or undersized floor joists, a failed or settling support beam in the basement or crawlspace, or deteriorated wood framing due to moisture damage — and the repair approach, timeline, and cost depend entirely on which problem you're actually dealing with. Getting a professional assessment before any repair work starts is not optional here; the wrong fix wastes money and can leave the underlying cause to worsen.

In NB's older housing stock — the post-war bungalows common in Moncton, the turn-of-century homes in Saint John and Fredericton, the older rural farmhouses across the province — floor framing was often undersized by today's standards. Lumber grading wasn't enforced consistently before the 1960s, and many homes were built with spans that worked marginally well when new but have developed bounce and sag over decades of loading. **Sistering new joists alongside deteriorated or undersized originals** is one of the most effective repairs: new structural-grade lumber is nailed alongside the existing joists across their full span, doubling the carrying capacity and stiffening the floor significantly. Sistering a typical floor costs **$3,000 to $8,000** for a moderate area of floor,

depending on joist length, access difficulty, and how many joists require treatment.

If the issue is a **failed or insufficiently supported main beam** in the basement — which often shows up as a broad, gradual sag in the middle of the floor spanning the width of the house — the repair may involve installing a new steel or engineered wood column under the beam's midspan, or replacing a deteriorated wood beam with an LVL or steel equivalent. A new steel column with a proper pad footing typically costs **$1,500 to $4,000** installed. Replacing a failed main beam is a larger undertaking at **$4,000 to $10,000** or more depending on the beam's size and the shoring required during replacement.

Moisture damage is the most serious scenario. NB's spring snowmelt and Maritime humidity create conditions that attack floor framing from below, particularly in unventilated crawlspaces and unheated basement areas. Rot in floor joists, sill plates (the lumber sitting directly on the foundation), or rim joists (the perimeter framing) is common in NB homes that haven't had adequate moisture control. Replacing rotted sill plates and rim joists requires temporary jacking of the structure, which is specialized work. The moisture source — ground vapour infiltrating an unsealed crawlspace, drainage problems at the foundation, condensation in an unvented crawlspace — must be corrected at the same time as the framing repair, or the new wood will rot on the same timeline as the old.

For **minor sagging** in older NB floors with settled main beams, temporary and permanent jacking is sometimes used to slowly raise the floor back toward level. This must be done gradually — a maximum of 3 mm (about 1/8 inch) per week — to avoid cracking plaster walls or breaking connections elsewhere in the structure. Rushing this process in a hurry to get results causes more damage than the original sag. A contractor experienced in heritage home renovation will understand this pace.

Budget **$3,000 to $15,000** for most residential floor repair projects in NB, with the low end covering sistering work in an accessible basement and the high end reflecting rotted sill plate replacement, main beam work, or moisture remediation combined with structural repair. Add 20 to 25% contingency for any pre-1970 NB home — once you open up the floor system, additional hidden deterioration is common. A structural engineer assessment ($500 to $1,000) is worthwhile before any repair work begins on a significantly sagging floor; it identifies the true cause and prevents expensive misdiagnosis. Always confirm WorkSafeNB coverage with any contractor doing this type of work, as crawlspace and basement structural repairs involve confined-space and fall hazards.

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Q9

What structural upgrades are needed when adding a second storey in New Brunswick?

Adding a second storey to a New Brunswick home is one of the most structurally complex renovation projects you can undertake — it requires a thorough engineering assessment of the existing foundation, first-floor framing, and wall structure before a single calculation can be made about what upgrades are needed. In NB's climate, where 200+ cm of annual snow loads and deep frost lines govern structural design, getting the engineering right from the start is non-negotiable.

The assessment begins with the **foundation**. A second storey roughly doubles the dead load on the foundation and significantly increases the roof snow load contribution. NB's frost-depth requirement (4 to 5 feet depending on location) means the existing footings were hopefully sized for the original structure; a structural engineer will calculate whether the existing footing area is sufficient for the increased load or whether it needs to be underpinned and widened. Underpinning existing footings to handle greater loads costs **$15,000 to $35,000** for a typical residential foundation and is a significant project that adds considerably to second-storey addition costs. Foundation walls also need to be assessed for their lateral load capacity under the increased height.

The **first-floor wall framing** becomes the bearing wall system for the entire second storey. In many NB homes from the 1950s through 1970s, exterior walls were framed with 2x4 studs at 16 inches on centre — adequate for a single storey but sometimes marginal when carrying a full second-floor load plus the new roof system above. The engineer will assess stud sizing, top plate doubling, and whether any walls need to be reinforced or rebuilt before the second storey is added. In balloon-framed older NB homes (pre-1950), this assessment is particularly important as the framing system works differently than modern platform framing.

First-floor-to-second-floor connection requires a robust rim joist and bearing detail at the top of the existing first-storey walls. The new second-floor joists (or engineered floor trusses) must be properly spec'd for the second-floor live and dead loads plus any partition loads above. NB's snow loading requirements for the new roof above the second storey will be higher than the original roof — your structural engineer will specify the roof rafter or truss design to meet NB building code for your specific location, with northern NB communities needing heavier designs than coastal southern areas.

Lateral load resistance — the building's ability to resist wind — needs to be reviewed for the increased height. NB's coastal and exposed areas experience significant wind loads, and a taller building with the same original lateral bracing as a single-storey home may need additional shear wall reinforcement or other lateral bracing improvements. Bay of Fundy coastal communities and exposed ridge-top locations in particular need careful wind design review.

Typically, **a second-storey addition requires**: foundation assessment and potentially underpinning, first-floor wall reinforcement in targeted locations, a new engineered floor system for the second level, full framing of the second storey with properly spec'd walls and roof, new roof structure designed to NB snow load requirements, and complete new building envelope (insulation, vapour barrier, sheathing, roofing, windows, siding). Second-storey additions in NB cost **$200 to $350 per square foot** for the addition itself — a 1,000 sq ft second storey runs $200,000 to $350,000 fully completed.

All of this work requires a **building permit**, engineered drawings, and multiple inspections. The permit process for a second-storey addition in NB is comprehensive precisely because the structural implications are significant. The TSANB will also be involved for any electrical or plumbing work in the new level. Plan **8 to 16 months** from design through completion for a typical NB second-storey addition, accounting for engineering, permitting, seasonal construction windows, and the complexity of working on an occupied home. The exterior construction window of May through October in NB makes timing the work carefully essential — the structure needs to be weathered in before winter. New Brunswick Renovations can connect you with experienced local contractors who handle this type of complex structural renovation.

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Q10

How much does it cost to underpin a basement in New Brunswick?

Basement underpinning in New Brunswick typically costs $30,000 to $70,000 for a full residential project, with final cost driven by the basement's square footage, existing foundation depth, soil conditions, and whether waterproofing and finishing are included in the scope. Underpinning — the process of deepening the existing foundation to gain usable basement height — is one of the most technically demanding renovation projects you can take on, and NB's frost depth, soil variability, and Maritime moisture conditions add layers of complexity that make professional engineering essential from day one.

The most common underpinning method used in NB residential projects is **bench footing underpinning** (also called the bench method), where sections of the existing footing are excavated below the current depth in alternating sections, new concrete footings are poured at the greater depth, and the process repeats around the perimeter. This allows the existing foundation to remain supported throughout the process. The alternating-section approach is critical — underpinning the entire perimeter at once would undermine the existing footing and risk catastrophic failure. **Mass concrete underpinning** using this method typically runs **$800 to $1,500 per linear foot** of foundation wall in NB, and a typical residential perimeter of 120 to 160 linear feet puts total structural underpinning cost at **$96,000 to $240,000** for full perimeter work — though most projects only underpin a portion of the perimeter to gain the desired headroom, which reduces cost significantly.

A more targeted approach is **pier-and-beam underpinning**, where helical piles or mini piles are driven to bearing depth at strategic points, with a new grade beam connecting them, effectively transferring the load to the new deeper bearing element. This approach can be more cost-effective for specific foundation conditions in NB and avoids the alternating-section timing constraints of mass concrete. Helical pile underpinning typically runs **$1,000 to $2,500 per pile** installed, with pile spacing and count determined by engineering.

NB's **frost depth** is one of the primary reasons underpinning costs are significant here. Many older NB homes — particularly the post-war bungalows built from the 1940s through 1960s — were constructed with basements or crawlspaces that technically meet frost depth (original footings at 4+ feet below grade) but leave only 5 to 6 feet of headroom, below the 7-foot-6-inch minimum typically desired for a functional finished basement. Gaining 18 to 24 inches of additional depth through underpinning requires significant excavation below existing footings, in soil that has been in place for 60+ years and may include unpredictable fill layers, clay pockets, or perched water tables.

Soil conditions in NB vary considerably by region. The heavy marine clay soils common in coastal communities and along the Saint John River valley behave very differently under load than the sandy, well-drained soils found in some inland areas. Marine clay has lower bearing capacity and is more susceptible to settlement after disturbance — underpinning in heavy clay requires more conservative engineering and closer spacing of underpinning sections.

A geotechnical assessment ($1,500 to $3,000) may be required alongside structural engineering for underpinning in clay-dominated soil areas.

Waterproofing must be integrated with any underpinning project. The excavation involved in underpinning is the ideal time to apply exterior waterproofing membrane, install new drainage board and weeping tile, and connect to a sump system. Combining waterproofing with underpinning is significantly more cost-effective than doing these as separate projects. Budget **$10,000 to $20,000** for comprehensive waterproofing integrated with the underpinning scope.

Always engage a **licensed structural engineer** for basement underpinning in NB — this is not a project where contractor-only planning is appropriate. Engineering fees for a residential underpinning project run $2,000 to $5,000. Building permits are required, and the work will be inspected at multiple stages. For detailed basement renovation guidance, New Brunswick Basements at newbrunswickbasements.com covers underpinning, waterproofing, and finishing in depth.

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Q11

Do I need a structural engineer for a major renovation in Moncton NB?

For any renovation in Moncton that involves removing or altering load-bearing walls, adding beams or headers, modifying the foundation, or building an addition, a structural engineer's assessment is required — not optional. The City of Moncton building inspection department will typically require stamped drawings from a licensed professional engineer as part of the permit application for structural work.

The confusion often comes from the fact that not every renovation triggers this requirement. Cosmetic work — new flooring, painting, cabinet replacement, fixture swaps — doesn't touch structure and needs no engineer. But the moment you start talking about opening up a kitchen to a living room, emoving a wall to create an open floor plan, adding a dormer, or finishing a basement with structural concerns, you are in structural territory. In those cases, an engineer isn't just a bureaucratic formality — they are your insurance policy that the building won't develop

problems five or ten years down the road.

For NB homes specifically, the structural stakes are higher than in many Canadian markets. **New Brunswick's 100+ annual freeze-thaw cycles** put relentless stress on every structural connection, foundation, and header in the building. An undersized beam over a newly opened living space won't just feel springy — it will deflect and crack over years of NB winters. Engineers design for our actual loading conditions, including the heavy snow loads that NB buildings must handle — especially relevant if your renovation involves any changes to roof structure. Moncton's older housing stock, much of it built between the 1920s and 1970s, frequently has undersized framing by today's standards and old-growth lumber that behaves differently than modern dimensional lumber.

What does a structural engineer cost in NB? For a residential consultation and stamped drawings on a typical renovation, expect to pay **$800-$2,500** depending on complexity. Full structural assessment plus drawings for an addition or complex beam installation runs **$1,500-$4,000**. This feels like a significant cost, but it is a rounding error compared to the total project budget — and it is far cheaper than discovering mid-project that your contractor's beam sizing doesn't meet code and the inspector stops the job.

The practical process in Moncton: your general contractor will typically coordinate the structural engineer as part of the project team. You don't usually need to find an engineer independently — a good contractor has working relationships with local engineering firms. That said, for a major renovation, it is worth confirming early in the planning process (not after demo) that a structural engineer is part of the plan. The worst outcome is demolishing a wall only to discover the beam specification wasn't signed off, grinding the project to a halt.

For structural modifications, removing load-bearing walls, foundation work, or any addition to your home's footprint, **always hire a licensed professional engineer and pull the required permits** through the City of Moncton building department. The permit fee and engineering cost are small compared to the liability and repair costs of getting structural work wrong. Need help finding experienced renovation contractors in Moncton who work with engineers on complex projects? New Brunswick Renovations can connect you with local professionals for free.

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Q12

How do I address a cracked foundation in an older New Brunswick home?

Not all foundation cracks are equal, and the first step is always professional assessment to determine whether you have a cosmetic crack or a structural problem — because the treatment and cost are completely different. In New Brunswick's older housing stock, particularly homes built before 1970, foundation cracks are extremely common and range from minor shrinkage cracks to active structural failures requiring significant remediation.

Horizontal cracks in poured concrete or block foundations are the most serious. They indicate lateral soil pressure pushing in against the foundation wall — a condition that, if left unaddressed, can lead to wall buckling and structural failure. These require engineering assessment immediately and typically involve wall reinforcement through carbon fibre strapping, steel I-beam bracing, or in severe cases, partial or full foundation replacement. Vertical and diagonal cracks in poured concrete foundations are often shrinkage cracks from the original pour and may be stable and cosmetic, though they can allow water infiltration. Stair-step cracks in block or brick foundations indicate differential settlement and warrant close attention.

NB's frost depth of 4 to 5 feet is a critical factor in foundation cracking. Older NB homes — especially those built before modern building codes established minimum frost depth requirements — may have footings that don't extend below the frost line. Every spring thaw, the soil beneath and around these foundations moves, creating stress cycles that crack and shift masonry over decades. This is particularly common in Saint John, Fredericton, and older Moncton-area neighbourhoods where 80-100 year old homes are plentiful.

Spring is when NB foundation problems reveal themselves most clearly. As snowmelt raises the water table from April through June, water finds every crack and seam in the foundation. **Hydrostatic pressure** against NB foundations during spring melt is significant — this is the season you'll notice efflorescence (white mineral deposits), damp patches on basement walls, and active seepage. Any crack that is allowing water entry needs two solutions: structural stabilization of the crack, and waterproofing to stop the moisture pathway.

For hairline shrinkage cracks that are confirmed stable and dry, polyurethane or epoxy injection is an effective DIY-accessible repair. Epoxy injection bonds the crack and restores structural continuity; polyurethane foam injection is flexible and better suited for wet cracks where some movement may continue. Kits are available at NB hardware stores for **$50-$150** and work well on simple vertical cracks in poured concrete. However, if water is actively entering or the crack shows signs of movement (displaced edges, widening over time), this is not a DIY situation.

Professional foundation repair costs in NB vary considerably with scope. Carbon fibre strapping for an inward-bowing block wall runs **$3,000-$8,000** for a typical installation. Interior drainage systems to manage water that

enters through cracks cost **$5,000-$12,000** depending on basement perimeter. Full exterior waterproofing — excavating down to the footing, applying waterproof membrane, and installing new drainage — costs **$10,000-$25,000** for an average NB home but provides the most comprehensive solution.

Always have a structural engineer assess any crack you are uncertain about before committing to a repair approach. Misdiagnosing a structural crack as cosmetic leads to expensive surprises later. **New Brunswick Basements at newbrunswickbasements.com** has detailed guidance on basement waterproofing and moisture management that pairs directly with foundation crack repair. For foundation and structural work, always pull the required permits and confirm your contractor carries WorkSafeNB coverage before work begins.

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