

NEW BRUNSWICK DECKS

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# Deck Installation & Building

Questions about deck construction methods, framing, footings, ledger boards, and building techniques for NB conditions.

14 Expert Answers from Deck IQ

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## What diameter Sonotube do I need for a deck in Campbellton NB?

**For a standard residential deck in Campbellton, use 10-inch diameter Sonotubes. Step up to 12-inch diameter for heavy loads such as hot tub platforms, multi-level structures, or large elevated decks with long joist spans.** The diameter you choose determines the bearing area of the footing, which directly affects how much weight each footing can support on the soil beneath it.

The 10-inch Sonotube is the workhorse of residential deck construction across New Brunswick and handles the load requirements of the vast majority of single-level, attached decks. A 10-inch tube produces a footing with a bearing area of roughly 78 square inches. When poured on competent soil with reasonable bearing capacity, which covers most of the ground in the Campbellton area outside of the immediate riverbank zones along the Restigouche, each 10-inch footing can comfortably support 2,000 to 3,000 pounds depending on soil conditions. For a typical deck with footings spaced 6 to 8 feet apart along each beam line, this is more than adequate to carry the combined dead load of the structure, the live load of people and furniture, and the seasonal snow load that Campbellton receives.

Snow load is an important consideration in Campbellton specifically. Located in northern New Brunswick near the Quebec border, Campbellton receives some of the heaviest snowfall in the province. Ground snow loads in this region can reach 3 to 4 kilopascals or more according to the climatic data tables referenced by the National Building Code. While most of this snow will slide or be cleared from a deck surface, it does factor into the structural design, and it is one reason why going with 12-inch tubes is a reasonable precaution for larger or more complex deck structures in this area.

The 12-inch Sonotube produces a footing with approximately 113 square inches of bearing area, a 45 percent increase over the 10-inch tube. Use this larger diameter when your deck will support concentrated heavy loads. A hot tub filled with water and occupants can weigh 4,000 to 5,000 pounds, and the footings beneath that section of the deck need to handle that load with a generous safety margin. Multi-level decks with upper platforms also benefit from 12-inch footings because the posts supporting the upper level carry the accumulated load of that entire section. If your deck design calls for beams spanning more than 8 feet between posts, the increased load on each footing is another reason to upsize.

Regardless of diameter, every Sonotube in Campbellton must extend below the frost line, which in northern New Brunswick reaches 5 feet or deeper. The tube should sit on undisturbed soil at the bottom of the excavation, and placing 4 to 6 inches of compacted gravel beneath the tube helps with drainage and provides a level base. Rebar is not always required by code for simple deck footings, but placing a single vertical piece of rebar in the centre of the pour adds tensile strength that helps the footing resist cracking from lateral frost pressure.

At the top of each Sonotube, set a galvanized post bracket or adjustable post base into the wet concrete. This bracket holds the deck post above the concrete surface, keeping the wood out of direct contact with moisture and allowing you to make minor height adjustments during framing. In Campbellton's climate, where spring thaw brings significant ground moisture, this elevated connection detail prevents the bottom of the post from wicking water and rotting prematurely.

Sonotubes are available at building supply stores in and around Campbellton in both 10-inch and 12-inch sizes, typically in 4-foot and 8-foot lengths. For the 5-foot-plus frost depth required in this region, an 8-foot tube trimmed to the correct height is the most practical option.

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Q2

## How do I install flashing between my deck ledger and house wall in Riverview NB?

**Install a combination of self-adhering waterproof membrane behind the ledger and metal Z-flashing above it to create a continuous water management system that directs moisture away from the house wall.** This is the single most important detail in any attached deck, and getting it wrong is the leading cause of structural rot at the ledger connection, a problem that is especially common in Riverview given the area's significant rainfall and heavy snow loads.

Start by preparing the wall surface where the ledger will be mounted. If your home has vinyl or aluminum siding, remove the siding in the area where the ledger will sit, plus about 6 inches above and to each side. You need to work directly against the wall sheathing and house wrap. If the house has no house wrap, which is the case with some older homes in the Riverview and Greater Moncton area, apply a layer of self-adhering waterproof membrane

directly to the sheathing. Products like Grace Vycor Plus, Blueskin, or similar peel-and-stick membranes work well for this application. The membrane should cover the full area behind the ledger board and extend at least 4 to 6 inches above the top edge of where the ledger will sit. Wrap it down below the ledger position as well so that any moisture that reaches the sheathing behind the ledger has a waterproof barrier preventing it from soaking into the wall framing.

With the membrane in place, position your ledger board and bolt it to the rim joist of the house. Use 1/2-inch diameter hot-dipped galvanized or stainless steel lag screws or through-bolts spaced no more than 16 inches on centre in a staggered high-low pattern. Between the ledger and the membrane-covered sheathing, install stainless steel standoff washers or purpose-made spacers. These create a small gap, typically 1/2 inch, between the back of the ledger and the wall. This gap is critical because it allows any water that gets behind the ledger to drain downward and out rather than sitting trapped against the wood and rotting both the ledger and the rim joist behind it.

After the ledger is bolted in place, install the metal Z-flashing. This is a bent piece of corrosion-resistant metal, either galvanized steel or aluminum, shaped like the letter Z when viewed from the side. The top leg of the Z tucks up behind the house wrap or building paper above the ledger. The middle section bends out over the top edge of the ledger board. The bottom leg kicks outward, directing water away from the face of the ledger and onto the top of the deck joists or decking. Secure the top leg with a few roofing nails or screws through the house wrap, and then lap the siding back down over it so that the siding covers the top leg entirely. Water running down the siding hits the siding, passes behind it to the house wrap, runs down the house wrap, hits the Z-flashing, and gets directed out and away from the ledger. At no point does water get behind the flashing and against unprotected wood.

In Riverview, where the Petitcodiac River valley creates a microclimate with frequent fog, heavy dew, and significant precipitation, this flashing system is not a nicety but a necessity. Without it, moisture infiltration at the ledger connection can compromise the rim joist in as few as 5 to 8 years, leading to a structural repair that runs \$2,000 to \$5,000 depending on the extent of the damage. Many older decks in the Moncton-Riverview-Dieppe tri-community area were built without proper flashing, and if you are replacing or reattaching a ledger, take the opportunity to do it correctly this time.

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Q3

## What is the best time of year to pour deck footings in New Brunswick?

**The best time to pour deck footings in New Brunswick is from mid-May through the end of September, when ground temperatures are consistently above freezing and daytime air temperatures reliably stay above 10 degrees Celsius.** This window gives concrete the conditions it needs to cure properly and gives you workable ground that is not frozen or saturated with spring melt.

Concrete curing is a chemical reaction called hydration, and temperature plays a critical role in how well it proceeds. When fresh concrete is exposed to temperatures below 5 degrees Celsius within the first 24 to 48 hours, the hydration process slows dramatically and can stop altogether if the concrete freezes. Frozen concrete loses up to 50 percent of its potential strength and will crumble under load. In New Brunswick, overnight temperatures can dip below freezing well into May in northern areas like Edmundston, Campbellton, and Bathurst, and frost returns as early as late September in those same regions. In the southern part of the province around Saint John, Moncton, and Fredericton, the safe window is slightly wider, roughly early May through mid-October.

June through August is the ideal core period across the entire province. Ground conditions are dry and stable, excavation is straightforward, and warm temperatures mean concrete reaches its initial set within hours and achieves adequate working strength within 24 to 48 hours. You also benefit from long daylight hours, which gives you a full working day to dig, set Sonotubes, mix or pour concrete, and set post brackets before dark.

Spring pours in April and early May are possible but come with complications. The ground in much of New Brunswick is still thawing and saturated with snowmelt during this period. Digging footing holes in waterlogged soil is messy, and standing water in the bottom of your excavation can compromise the concrete. If you must pour in early spring, pump out any standing water and place a few inches of gravel in the bottom of the hole for drainage before setting the Sonotube. You should also be prepared to cover freshly poured footings with insulated blankets overnight if temperatures are forecast to drop below 5 degrees.

Fall pours in October carry similar risks in reverse. You might get a stretch of warm weather that seems perfect, but an unexpected early frost can catch concrete that has not yet fully cured. Concrete continues to gain strength for weeks after pouring, and even if it survives the first night, sustained cold temperatures in the following days will compromise the long-term durability of the footing.

If your schedule forces you outside the ideal window, helical piles are worth considering as an alternative to poured concrete. They are steel screw piles that are driven mechanically past the frost line and require no concrete at all, which means no cure time and no temperature sensitivity. They can be installed in virtually any season, including winter, provided the equipment can access your site. For New Brunswick homeowners who want to get a head start on a spring deck build, having helical piles installed in late March or April and then framing as soon as the weather cooperates is an increasingly popular approach.

Regardless of when you pour, every footing in New Brunswick must extend below the local frost line, which ranges from about 4 feet in the southern coastal areas to 5 feet or more in the northern interior. Use 10-inch diameter Sonotubes for standard residential deck loads, stepping up to 12-inch tubes for heavier structures or concentrated loads like hot tub supports.

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## Can I use helical piles instead of concrete footings for a deck in Bathurst NB?

**Yes, helical piles are an excellent alternative to concrete footings for deck construction in Bathurst, and they are particularly well suited to the soil and climate conditions found in northern New Brunswick.** Helical piles are engineered steel shafts with one or more helical bearing plates welded to the lower end. They are driven into the ground using hydraulic equipment until they reach load-bearing soil or rock below the frost line, and they provide immediate structural support with no concrete cure time required.

Bathurst sits in the Chaleur region where the frost line extends 5 feet or more below grade due to the colder and longer winters compared to southern New Brunswick. Traditional Sonotube footings in this area require excavating to that full depth, pouring concrete, and then waiting at least 48 to 72 hours for adequate curing, longer if temperatures are cool. Helical piles bypass all of that. A qualified installer with a skid steer or mini excavator fitted with a hydraulic drive head can install a full set of residential deck piles in a matter of hours. For a standard deck requiring 6 to 9 piles, most crews in the Bathurst area can complete the installation in a single morning.

The soil conditions around Bathurst make helical piles a particularly smart choice. Much of the Chaleur region has rocky ground mixed with clay and glacial till. Digging Sonotube holes through rocky soil by hand is backbreaking work, and even with a power auger, hitting bedrock or large boulders can stall the process entirely. Helical piles are designed to handle rocky soil conditions. The helical plates cut through mixed ground, and when they encounter solid rock, they anchor against it, which actually provides superior bearing capacity. In softer or clay-heavy soils, which are common in lower-lying areas near the Nepisiguit River and Bathurst Harbour, helical piles reach past the unstable upper layers and anchor into competent soil below.

From a cost perspective, helical piles typically run \$150 to \$300 per pile installed in northern New Brunswick, depending on the depth required and the installer's mobilization costs. Sonotube footings, when you factor in the tube, concrete, rebar, post brackets, excavation labour, and disposal of spoil, usually cost \$80 to \$150 each for a homeowner doing the work and \$150 to \$250 each if hiring it out. The per-unit cost of helical piles can be slightly higher, but the total project cost often ends up comparable or even lower because of the dramatic reduction in labour time and the elimination of cure-time delays.

Helical piles also perform exceptionally well against frost heave, which is one of the most common deck problems in northern New Brunswick. Because the smooth steel shaft offers very little surface area for frost to grip compared to a rough concrete column, helical piles resist the upward forces that cause concrete footings to shift if they were not poured deep enough. If you have ever seen a deck in the Bathurst area with one corner higher than the others after a hard winter, inadequate footing depth and frost heave is almost certainly the cause. Helical piles, when installed to the engineered torque specification, virtually eliminate this risk.

The New Brunswick Building Code accepts helical piles as a foundation system for decks and other structures, provided they are engineered for the specific loads and installed by a qualified contractor who can provide torque logs and load capacity documentation. Most building inspectors in the Bathurst area are familiar with helical pile installations and will accept the manufacturer's engineering data as part of the permit process.

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Q5

## How long does it take to build a 14x20 deck in Fredericton NB?

**A 14x20 deck in Fredericton typically takes 5 to 10 days to build from start to finish, depending on the complexity of the design, footing conditions, and whether you are doing the work yourself or hiring a contractor.** A professional crew of two to three experienced builders can often complete a straightforward single-level deck of this size in about 5 to 7 working days. A homeowner tackling it as a DIY project should plan for 8 to 14 days of actual work time.

The timeline breaks down into several distinct phases. The first is footing installation, which is often the most variable part of the schedule. A 14x20 deck will typically require 6 to 9 footings depending on beam placement and joist spans. In Fredericton, the frost line sits at approximately 4 to 5 feet below grade, so each footing hole needs to be excavated to that depth. If you are using 10-inch Sonotubes, which are the standard diameter for residential deck loads, you need to dig, place the tubes, pour concrete, and wait for it to cure. Concrete needs at least 48 hours to reach sufficient strength for loading, and in cooler Fredericton spring or fall temperatures, 72 hours is safer. This curing time is often the single biggest delay in the project. If you opt for helical piles instead of Sonotubes, you eliminate the concrete cure wait entirely, and a crew with a hydraulic driver can install all your piles in half a day.

Once the footings are ready, framing goes relatively quickly for experienced builders. Setting the beams, installing the ledger board against the house with proper self-adhering membrane or metal Z-flashing, hanging the joists, and adding blocking typically takes 1 to 2 days for a deck this size. The 14-foot dimension is convenient because it can be spanned with standard lumber lengths without splicing, which saves time.

Decking installation on a 280-square-foot surface takes about 1 to 2 days. Pressure-treated boards go down faster because you are face-screwing them with a drill. Composite decking takes longer due to hidden fastener systems, precise gapping at 3/16 inch for thermal expansion, and more careful handling to avoid scratching the finished surface.

Railing installation adds another 1 to 2 days depending on the style. A simple pressure-treated rail with wood balusters is the quickest option. Aluminum or composite railing systems look sharper but involve more measurement and cutting. Stairs, if your deck height requires them, add roughly half a day to a full day.

Before any of this begins, you need a building permit from the City of Fredericton. For an attached deck more than 24 inches above grade, the permit application requires a site plan and basic structural details. Permit processing in Fredericton typically takes 5 to 10 business days, so submit your application well before your planned start date. You will also need to call for footing and framing inspections, which can add a day or two of waiting to the schedule depending on inspector availability.

The best time to build in Fredericton is late May through September when ground conditions are dry, temperatures are warm enough for concrete work, and daylight hours are long. Starting a deck project in April is possible but rain and soft ground from snowmelt often cause delays.

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Q6

## What is the correct gap between deck boards for expansion in New Brunswick's climate?

**For pressure-treated wood decking in New Brunswick, leave a 1/8-inch gap between boards at the time of installation. For composite decking, the gap should be 3/16 inch to accommodate greater thermal expansion.** These spacing dimensions are measured edge to edge between adjacent boards and are essential for both drainage and material movement throughout the year.

New Brunswick's climate is one of the most demanding in Canada when it comes to deck board movement. Seasonal temperature swings regularly exceed 50 degrees Celsius, from minus 25 or colder in January to plus 30 or more in July. On top of that, humidity levels shift dramatically between the dry cold of winter and the damp heat of summer. Both temperature and moisture cause decking materials to expand, contract, and in the case of wood, swell or shrink across their width.

Pressure-treated lumber, which remains the most popular decking material in New Brunswick due to its affordability and availability, absorbs and releases moisture as conditions change. When boards are installed during the warmer months, the wood is typically at or near its driest dimension, so a 1/8-inch gap is appropriate. If you are installing in the spring or fall when the wood may still be relatively wet from the lumber yard, you can install the boards tight together or with just a 1/16-inch gap, because the boards will shrink as they dry and open up to roughly the right spacing on their own. The key is to understand the moisture content of the lumber at the time of installation and adjust accordingly. Kiln-dried after treatment lumber, which is becoming more common at New Brunswick building supply stores, will already be at a lower moisture content and should receive the full 1/8-inch gap regardless of the season.

Composite decking behaves differently. Products from manufacturers like Trex, TimberTech, and Fiberon do not absorb moisture the way wood does, but they expand and contract significantly with temperature changes. A composite board can grow by as much as 1/4 inch over a 20-foot length between winter and summer. The 3/16-inch gap between boards handles the lateral expansion, but you also need to follow the manufacturer's end-to-end gapping requirements, which are usually 1/8 to 1/4 inch at butt joints depending on the ambient temperature at installation. Most composite manufacturers include specific gapping instructions and sometimes even provide spacer clips in the box.

Getting the gap wrong in either direction causes problems. Too tight and the boards will buckle upward as they expand, creating a tripping hazard and putting stress on the fasteners. This is especially common with composite decking installed during cold weather without adequate gaps, because when summer arrives the boards have nowhere to go. Too wide and the gaps become a nuisance, catching furniture legs, bare toes, and debris that promotes moisture retention and mould growth between the boards.

For consistent spacing during installation, use a framing nail, a carpenter's pencil, or a purpose-made deck board spacer tool. Some hidden fastener systems, which are popular with grooved composite boards, have built-in spacing features that automatically set the correct gap as you install each board. These systems work well for composite products but are generally not used with pressure-treated lumber, which is typically face-screwed.

Proper gapping is a small detail that makes a meaningful difference in how your deck performs over 15 to 25 years in New Brunswick's challenging climate.

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## How do I attach a deck ledger board to a brick house in Moncton?

**Attaching a deck ledger to a brick house in Moncton requires fastening through the brick veneer into the structural rim joist or band board behind it, with proper flashing to prevent water intrusion.** Brick veneer on its own does not have the structural capacity to support a deck ledger, so the connection must transfer loads into the wood framing of the house.

The first step is to determine what is behind the brick. Most homes in Moncton built from the 1970s onward have brick veneer over a wood-framed wall with a 1-inch air gap between the brick and the sheathing. You need to verify this before proceeding. If the home has solid masonry walls, which is less common but possible in some older Moncton neighbourhoods, the attachment method is different and typically involves through-bolts with bearing plates.

For the typical brick veneer situation, you will cut out a section of brick where the ledger will sit. Use a masonry saw to make clean horizontal and vertical cuts, then carefully remove the brick in that area. This exposes the sheathing and allows you to locate the rim joist behind it. The ledger board, usually a pressure-treated 2x10 or 2x12 matching your joist depth, is then lag-bolted or through-bolted into the rim joist. Use 1/2-inch diameter hot-dipped galvanized or stainless steel lag bolts, spaced no more than 16 inches on centre in a staggered pattern. Each bolt should penetrate at least 3 inches into the rim joist.

### Flashing Is Critical

The most important detail in this entire process is the flashing. Water getting behind the ledger and into the wall cavity is the number one cause of structural failure in deck-to-house connections, and in Moncton's climate with heavy rain, snow, and freeze-thaw cycles, this risk is especially high. Install self-adhering waterproof membrane, such as Grace Vycor or a similar product, on the sheathing behind the ledger before you bolt it in place. This membrane should extend at least 4 inches above the top of the ledger and wrap down below it. Above the ledger, install metal Z-flashing that tucks up under the building wrap or house siding above and kicks out over the top of the ledger board. This directs any water that runs down the wall face out and away from the connection point.

Between the ledger and the concrete or brick surface, use stainless steel washers or spacers to create a small gap that allows water to drain through rather than pooling behind the board. Standing water behind a ledger is what causes the rim joist to rot over time, and once that happens you are facing a structural repair in the \$2,000 to \$5,000 range.

After the ledger is bolted and flashed, seal the edges where the brick meets the ledger area with a flexible, paintable exterior caulk. Do not use rigid mortar here because the wood and brick will expand and contract at

different rates through Moncton's temperature swings, which range from minus 25 Celsius in January to plus 30 in July.

Finally, make sure your ledger attachment meets the requirements of the New Brunswick Building Code. A building permit is required in the City of Moncton for any attached deck more than 24 inches above grade, and the inspector will pay close attention to the ledger connection because it is the most structurally critical point of the entire deck.

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Q8

## Do I need a concrete pad under my deck posts in Oromocto NB?

**Yes, you need a proper concrete footing under every deck post in Oromocto, not just a surface pad.** A simple concrete pad sitting on grade is not sufficient for New Brunswick's frost conditions. The frost line in the Oromocto area reaches approximately 4 to 5 feet below grade, and any footing that does not extend to that depth is at serious risk of heaving during the freeze-thaw cycles that define our winters.

The standard approach for residential deck construction in Oromocto and the surrounding Sunbury County area is to use Sonotubes, typically 10 inches in diameter for standard residential loads, poured with concrete down to or past the frost line. This means excavating a hole that reaches at least 4 feet deep, placing the Sonotube, and filling it with concrete. A post bracket or anchor bolt is set into the wet concrete at the top so the deck post sits above the footing rather than being buried in the ground. This keeps the wood away from moisture contact and gives you a solid, frost-resistant foundation.

Some homeowners in Oromocto try to shortcut this process by placing a precast concrete pad or deck block on the surface and setting a post directly on it. While this might seem stable during the summer months, it almost always leads to problems. Surface-level pads shift as the ground beneath them freezes and expands, then settles unevenly

when it thaws. Over two or three winters you will notice your deck becoming unlevel, doors sticking, and railings pulling away from the house. At that point you are looking at a structural repair that costs between \$2,000 and \$5,000, far more than doing it right the first time.

Helical piles are another excellent option in the Oromocto area, particularly if you are building on a lot with rocky soil or high water table conditions common near the Saint John River and its tributaries. Helical piles are steel shafts with helical plates that are mechanically screwed into the ground past the frost line. They require no concrete and no cure time, so you can begin framing the same day they are installed. They tend to cost slightly more per footing than Sonotubes, but the labour savings and reliability in challenging soil conditions often make them the more practical choice.

Regardless of which footing method you choose, your deck will also need to comply with the New Brunswick Building Code, which follows the National Building Code of Canada with provincial amendments. If your deck is attached to the house and is more than 24 inches above grade, a building permit is required from the Village of Oromocto or the applicable local authority. The permit process will require a site plan showing footing locations, depths, and spacing, so having your footing design sorted out before you apply will save you time. Footing spacing is determined by the load each post carries, which depends on your joist span, beam size, and the overall deck dimensions. For a typical residential deck, footings are spaced 6 to 8 feet apart along each beam line.

The bottom line is that a proper below-frost-line footing, whether Sonotube or helical pile, is not optional in Oromocto. It is the foundation that keeps your entire deck stable and level for the 15 to 25 years you should expect from a well-built pressure-treated structure.

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Q9

## How do I install deck footings in rocky soil in Sussex NB?

**Installing deck footings in rocky soil in Sussex NB typically requires either a combination of mechanical breaking and Sonotube forms, or switching to helical piles, which are specifically engineered to anchor into rocky ground without excavation.** The Sussex area sits on glacial deposits with a high concentration of cobblestones, boulders, and in some locations shallow bedrock, making standard footing installation significantly more challenging than in areas with clean clay or sand soils.

Sussex and the surrounding Kennebecasis Valley have three common subsurface conditions: loose cobblestones and gravel mixed into till, dense hardpan with embedded boulders, and shallow bedrock. Loose cobbles can often be worked through with the right equipment. Dense hardpan with boulders is harder but still manageable. Shallow bedrock changes your strategy entirely because you cannot dig through it cost-effectively, but you can often bear directly on it. The frost depth in the Sussex area is 1.2 metres, the same as Moncton and Saint John, so any footing must reach at least that depth unless you are bearing on bedrock above the frost line, which requires an engineered detail showing the rock itself cannot heave.

If you are attempting the conventional Sonotube approach in rocky soil, a standard hand-held power auger will stall on anything larger than a softball-sized rock. You will need either a skid-steer-mounted auger with a rock bit, which can chew through most cobble and fractured rock, or a combination of augering and hand work with a digging bar and breaker hammer. For isolated boulders, a rotary hammer drill with a long masonry bit can fracture the stone enough to extract it in pieces. An electric jackhammer is necessary for hardpan with densely packed cobble. Renting a jackhammer for a day in the Sussex area runs roughly \$75 to \$150, and for a deck with 6 to 9 footings, you should budget for at least a full day of breaking work.

Once you reach the required 1.2-metre depth in rocky soil, you may find that the hole walls are irregular and loose rather than the clean cylinder you get in clay. This is normal. Set your Sonotube into the hole, making sure it extends at least 2 to 3 inches above grade, and backfill around the outside of the tube with gravel to stabilize it. The rocky soil actually provides excellent bearing capacity, often superior to clay, so the concrete footing will sit on a very solid base. Use a minimum 10-inch diameter Sonotube, pour concrete with rebar reinforcement, and set a post bracket into the top.

The increasingly popular alternative in Sussex and throughout the Kings County area is helical piles. These are steel shafts with helical plates welded to the lower section, driven into the ground by a hydraulic motor mounted on a skid steer or mini excavator. The key advantage in rocky soil is that helical piles do not require excavation. The helical plates cut through soil and deflect around cobblestones, and the driving equipment generates enough torque to push through most conditions short of solid bedrock. When they do hit bedrock, the torque reading spikes and the installer can confirm bearing capacity on the rock itself. Helical piles in the Sussex area cost \$200 to \$500 per pile installed, depending on the required depth and soil difficulty. For a typical residential deck requiring 6 to 9 foundation points, the total helical pile cost runs \$1,200 to \$4,500, which is more than Sonotubes in easy soil but

often comparable once you factor in equipment rental and extra labour for rocky ground. Helical piles also provide instant load-bearing capacity, meaning your builder can frame the deck the same day the piles go in with no concrete curing wait. Concrete pours in the Sussex area should be scheduled between mid-May and September when temperatures stay reliably above the 10-degree-Celsius minimum needed for proper curing.

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## What is the proper joist spacing for a residential deck in Dieppe NB?

**The proper joist spacing for a residential deck in Dieppe NB is 16 inches on centre for wood decking and 12 inches on centre for composite or PVC decking.** These measurements are taken from the centre of one joist to the centre of the next, and they apply uniformly across the deck surface to ensure consistent support and prevent sagging or bouncing between joists over time.

The 16-inch on-centre standard for wood decking, whether you are using pressure-treated lumber, cedar, or another species, is derived from the span tables in the National Building Code of Canada. At this spacing, standard 5/4x6 deck boards (which are actually about 1 inch thick and 5.5 inches wide) have adequate support to resist deflection under foot traffic and furniture loads without feeling springy. For 2x6 deck boards, which are thicker at 1.5 inches, 16-inch spacing provides even more rigidity, and some builders will go to 24-inch spacing with 2x6 boards on simple, low-traffic structures. However, 24-inch spacing is uncommon for quality deck work because it creates a noticeable flex underfoot and makes the deck feel less solid.

Composite and PVC decking requires the tighter 12-inch on-centre joist spacing because these manufactured boards have different structural properties than solid wood. Composite boards are more flexible across their span than a wood board of similar dimensions, and they will develop visible sag between joists over time if the span is too wide. Every major composite manufacturer, including Trex, TimberTech, Fiberon, and AZEK, specifies maximum joist spacing in their installation guides, and 16 inches is typically the absolute maximum for straight-run installations. For diagonal board patterns, which are popular for visual interest, the maximum joist spacing drops to 12 inches for most composite products, and some manufacturers require it even tighter at 10 inches for 45-degree diagonal installations. Since many homeowners in Dieppe choose composite decking for its low maintenance in the Maritime climate, planning for 12-inch spacing from the start gives you the flexibility to install boards in any direction without reworking the framing.

For Dieppe specifically, there is a practical climate consideration that influences joist spacing decisions. The Greater Moncton area including Dieppe receives significant snow loads, and decks must support this accumulated weight in addition to normal live loads. Tighter joist spacing creates a stronger overall deck platform, which handles snow loads with a greater safety margin. A deck framed at 12 inches on centre is roughly 33 percent stronger in surface load distribution than the same deck at 16 inches on centre, simply because there are more support members sharing the load.

The joist material itself matters alongside the spacing. In Dieppe, pressure-treated SPF (spruce-pine-fir) is the standard joist material, with 2x8 being the minimum size for most residential decks and 2x10 being common for longer spans. For joist spans up to about 10 feet, 2x8 joists at 16 inches on centre are adequate for wood decking.

Push the span to 12 or 14 feet and you need 2x10 joists to stay within deflection limits. When using 12-inch spacing for composite decking, the added number of joists means more lumber, more hangers, and more fasteners, which increases material cost by roughly 20 to 30 percent compared to 16-inch spacing. This is a standard cost of building with composite and should be factored into the project budget from the beginning rather than treated as an upgrade.

Blocking between joists is also important for decks in Dieppe's climate. Solid blocking at 4-to-6-foot intervals prevents joists from twisting or rolling over time, which is especially important with the wet-dry and freeze-thaw cycling the framing endures annually.

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Q11

## Can I build a deck myself in Saint John NB or do I need a licensed contractor?

**You can legally build a deck yourself in Saint John NB as a homeowner on your own property, but you still need a building permit for any deck that is attached to the house or more than 24 inches above grade, and the work must meet the same code standards as a professional build.** New Brunswick does not require homeowners to hold a contractor's licence to work on their own residential property, so the legal barrier is not licensing but rather permitting and inspection.

The City of Saint John's building inspection department will issue a residential building permit to a homeowner-builder. You will need to submit a site plan showing the deck's location relative to property lines and the house, along with construction drawings that detail the footing depths, framing layout, beam and joist sizes, ledger connection method, railing design, and stair configuration. The permit fee for a deck in Saint John is relatively modest, typically in the \$100 to \$250 range depending on the project value. Once the permit is issued, you are

responsible for calling in inspections at the required stages, which typically include a footing inspection before concrete is poured and a final inspection when the deck is complete.

The practical question is not whether you are allowed to build a deck yourself, but whether you should. Certain components of deck construction are genuinely well-suited to DIY work, while others carry significant structural risk if done incorrectly. Ground-level platforms and floating decks that sit close to grade are reasonable DIY projects for a homeowner with basic carpentry skills and the right tools. Staining and finishing are also straightforward. However, the critical structural elements, specifically the footings, ledger board attachment, and main framing, are where DIY mistakes cause real problems.

The ledger board is the single most important structural connection on an attached deck. It is the horizontal board that bolts the deck frame to the house. This connection must be made with lag bolts or structural screws driven through the ledger, through the house sheathing, and into the rim joist or other structural member. The ledger must never be attached with nails alone, as nailed ledger connections are the number one cause of deck collapse in North America. Proper metal flashing must be installed between the ledger and the house wall to prevent water from wicking into the house structure and rotting the connection over time. Getting this wrong can result in catastrophic deck failure years later, often during a gathering when the deck is at full occupancy.

Footings in Saint John must reach the 1.2-metre frost depth. Digging footing holes by hand in Saint John's rocky glacial soil is gruelling and often impractical. Many homeowner-builders rent a power auger only to discover that the cobblestones and ledge rock common in the area stop the auger cold. At that point you either need a jackhammer or a switch to helical piles at \$200 to \$500 each, which require professional installation equipment.

The realistic assessment for most Saint John homeowners is this: hire a professional for the footings, ledger attachment, and structural framing. These are the elements that must be precisely right for safety and code compliance. Once the substructure is built and inspected, installing the deck boards, railings, stairs, and trim is work that a capable DIYer can handle confidently. This hybrid approach gets the critical structure done correctly while saving meaningful labour costs on the finish work. A typical 14-by-20-foot deck in Saint John takes a 2-to-3-person professional crew about 5 to 7 days from footing to completion, so the structural portion alone is roughly 2 to 3 days of professional time.

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Q12

## What is the frost depth for deck footings in Fredericton New Brunswick?

**The frost depth for deck footings in Fredericton, New Brunswick is 1.2 metres, or approximately 4 feet below grade.** All structural footings, including those for attached and elevated decks, must extend below this depth to prevent frost heaving, which is the upward movement of foundations caused by expanding ice in the soil during winter.

Fredericton's location in the Saint John River Valley gives it a continental climate that produces some of the coldest winter temperatures in southern New Brunswick. January average lows hover around minus 18 to minus 20 degrees Celsius, with cold snaps pushing to minus 30 or below several times each winter. These sustained cold periods drive the frost front deep into the soil, and the 1.2-metre frost depth figure accounts for the most severe conditions recorded in the region. In a mild winter the frost may only penetrate 0.8 to 1.0 metres, but designing to less than the established frost depth is inviting failure during the inevitable hard winter.

The soil conditions in and around Fredericton add a layer of complexity to footing installation. Much of the city, particularly areas near the Saint John River and its tributaries, sits on alluvial clay and silt deposits. These fine-grained soils are especially prone to frost heaving because they retain moisture effectively and develop ice lenses as temperatures drop. On the north side of the river and in surrounding areas like New Maryland, Hanwell, and Lincoln, soils tend to be glacial till with a mix of clay, sand, gravel, and cobblestones, which can make digging more difficult but actually heave less than pure clay.

For standard Sonotube footing installation in Fredericton, the procedure starts with augering holes to at least 1.2 metres deep, though most experienced builders in the area go to 1.3 metres to provide a safety margin. Sonotubes should be a minimum of 10 inches in diameter, with 12-inch being the more common choice for the clay-heavy soils in the river valley where a broader bearing surface helps distribute the load. The tubes are set into the hole, levelled, filled with concrete, and fitted with a post bracket at the top. Rebar reinforcement, either a single vertical bar or a cage depending on the load, is placed before the pour.

Timing the concrete pour is essential in Fredericton. The reliable warm-weather window for concrete work runs from mid-May through late September, when daytime temperatures consistently exceed 10 degrees Celsius and

nighttime lows stay above 5 degrees. Fredericton's spring arrives slightly later than the coastal cities, with frost possible well into May some years, so erring toward late May for footing pours is sensible. Concrete poured in early October is a gamble in Fredericton, as nighttime temperatures can drop below freezing by mid-month.

Helical piles are gaining traction in the Fredericton market as an alternative to concrete Sonotubes. They are particularly valuable on properties with high water tables near the river, where Sonotube holes fill with water during excavation and make clean concrete pours difficult. Helical piles are driven mechanically past the frost line into bearing soil, provide immediate load capacity, and cost between \$200 and \$500 per pile installed. For a typical 14-by-20-foot deck requiring 6 to 9 foundation points, helical piles add cost compared to Sonotubes but save significant time and eliminate concrete curing delays.

Fredericton requires a building permit for any deck that is attached to the house or elevated more than 24 inches above grade. The permit process includes a footing inspection before concrete is placed, confirming that the excavation reaches the required 1.2-metre frost depth and that soil conditions at the bottom of the hole are adequate for bearing.

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## How far apart should deck posts be spaced in New Brunswick?

**Deck posts in New Brunswick should typically be spaced 6 to 8 feet apart, with the exact spacing determined by the beam size, joist span, and the loads the deck must support.** This range applies across the province regardless of whether you are building in Moncton, Fredericton, Saint John, or any other community, because post spacing is a structural engineering question governed by the National Building Code of Canada and the lumber span tables it references.

The 6-to-8-foot range works as a general planning number for most residential decks, but the actual spacing depends on your specific beam configuration. A doubled 2x8 beam can safely span about 6 feet between posts when supporting joists with a typical 8-to-10-foot span. Step up to a doubled 2x10 beam and you can extend post spacing to approximately 8 feet under the same joist load. A tripled 2x10 or a doubled 2x12 beam can push slightly beyond 8 feet in some configurations, but going much beyond 8-foot spacing on a residential deck is uncommon and requires an engineer's stamp in most jurisdictions.

New Brunswick's climate introduces a load factor that directly affects these calculations. The province's snow load requirements are significant. Depending on your location, ground snow loads range from about 2.5 kPa in the southern coastal areas around Saint John to 3.5 kPa and higher in the northern interior near Edmundston and Campbellton. Decks must be designed to support these snow loads in combination with the dead load of the structure and the live load of occupants and furniture. Higher snow loads generally push post spacing tighter, toward the 6-foot end of the range, because the beams must carry more cumulative weight.

The post spacing layout for a typical 14-by-20-foot deck in New Brunswick illustrates how this works in practice. The 20-foot dimension usually runs parallel to the house, with the joists spanning the 14-foot depth. You would have a beam running the 20-foot length at the outer edge of the deck, supported by posts. With doubled 2x10 beams, you would place posts at roughly 6.5 to 7 feet apart, resulting in three posts along that beam plus one at each end, for a total of four posts on the outer beam. If the joist span is longer than about 10 feet, you may need an intermediate beam with its own set of posts, effectively doubling the total footing count.

Each post sits on a footing that must extend below the local frost line. In southern New Brunswick cities like Moncton, Saint John, and Fredericton, that means footings to 1.2 metres deep. In northern areas like Bathurst, Campbellton, and Edmundston, footings must reach 1.5 metres. Sonotube forms with a minimum 10-inch diameter are standard, filled with concrete and fitted with post brackets. Helical piles at \$200 to \$500 each are an alternative that avoids concrete altogether and works well in the rocky glacial soils found in many parts of the province.

Post size matters alongside spacing. For most residential decks up to about 10 feet in height, 6x6 pressure-treated posts are standard. Some builders in New Brunswick still use 4x4 posts for short decks under 4 feet tall, and while

this can meet code for very low structures, 6x6 posts provide substantially better resistance to lateral racking forces from wind and snow loads. Given the minimal cost difference, 6x6 is the better default choice for New Brunswick decks.

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Q14

## How deep do deck footings need to be in Moncton NB?

**Deck footings in Moncton NB must extend to a minimum depth of 1.2 metres (approximately 4 feet) below grade to get below the frost line and prevent frost heaving.** This is not a guideline or best practice; it is a structural requirement driven by local soil conditions and the New Brunswick Building Code. Footings that do not reach below frost depth will move as the ground freezes and thaws, eventually causing the deck structure to shift, rack, and potentially separate from the house.

The 1.2-metre frost depth for the Greater Moncton area, including Dieppe and Riverview, is based on long-term ground temperature data for the region. This depth represents the maximum penetration of the freezing front during the coldest winters. In an average winter, the frost may only reach 0.9 to 1.0 metres, but footings are designed for worst-case conditions. Cutting corners by digging to 3 feet instead of 4 will almost certainly result in heaving within the first few winters, and the repair cost far exceeds the minimal savings from shallower holes.

The standard approach for deck footings in Moncton is Sonotube cardboard forms. These cylindrical forms should be a minimum of 10 inches in diameter, though 12-inch tubes are more common for residential decks because they provide a wider bearing surface on Moncton's predominantly clay and till soils. The process involves augering or hand-digging a hole to at least 1.2 metres, setting the Sonotube so it extends a few inches above grade to keep the post base dry, placing rebar for reinforcement, and pouring concrete. A metal post bracket is set into the wet

concrete at the top to accept the support post, keeping the wood off the concrete surface where moisture could accumulate.

Concrete curing is a significant planning factor in Moncton. Concrete needs sustained temperatures above 10 degrees Celsius to cure properly, which realistically limits footing pours to the period from mid-May through September. Pouring in October is risky because overnight temperatures in Moncton regularly dip below 5 degrees Celsius by mid-month, and concrete that freezes before reaching adequate strength is structurally compromised. Many builders in the Moncton area schedule footing work for May or early June, allow a week of curing, then proceed with framing.

For properties in Moncton with challenging soil conditions, helical piles are an increasingly popular alternative. These steel screw-type foundations are mechanically driven into the ground past the frost line and provide instant load-bearing capacity with no concrete curing wait. At \$200 to \$500 per pile installed, they cost more per point than Sonotubes, but they eliminate the concrete pour entirely, work in wet conditions where Sonotube holes would flood, and can be installed in a single day for a typical residential deck. Several Moncton-area foundation companies specialize in helical pile installation for decks.

Post spacing on top of properly installed footings in Moncton follows standard structural practice of 6 to 8 feet apart, depending on the beam size and load requirements. A typical 14-by-20-foot deck in Moncton will require between 6 and 9 footings, arranged in rows that support the beam structure.

When pulling a building permit for a deck in Moncton, the inspection process typically includes a footing inspection before concrete is poured, where the inspector verifies depth, diameter, and soil bearing conditions. Building a deck without a permit, or pouring footings without the required inspection, creates problems at resale and leaves you liable if the structure fails.

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