DECK BUILDERS OTTAWA

Framing & Structure

Deck design loads, beams and posts, the connection to the house, and when a deck goes beyond the Code's prescriptive rules

5 Expert Answers from Deck IQ

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Q1

Deck beam sizes on Ottawa permit drawings: who decides?

The beam size on a permit drawing is decided by the designer or engineer named on Schedule 1 of the permit application, not by the City and not by the builder on site. The City of Ottawa requires a complete set of scaled, fully dimensioned drawings, and those drawings must show every beam with its size, spacing, direction and span before the application is accepted.

Who takes design responsibility depends on what the homeowner puts on Schedule 1. The 2024 Ontario Building Code allows a homeowner to take design responsibility for drawings related to construction or alteration of a house they own, so a homeowner who is comfortable with the calculations may sign Schedule 1 themselves. If they name a BCIN designer instead, that designer sizes the beams. Where the deck falls outside Part 9 scope, for example where a post carries loads from more than two levels of wood-frame decks or the supported joist length exceeds 5 m or the combined snow and occupancy load exceeds 4.8 kPa, the design must follow Part 4 of the Code, which means an engineered design. The same applies where the foundation is on filled ground, peat or sensitive clay such as Leda clay: those conditions also require a design in conformance with Section 4.2 of the Code.

The beam size itself flows from the load the deck must carry. The 2024 Ontario Building Code sets the design load for a deck serving a single dwelling unit at the specified roof snow load or 1.9 kPa, whichever is greater, and sets a deflection limit of 1/240 for beams, joists and decking. The designer works from those numbers, the joist span, the beam span and the species and grade of lumber, to arrive at the beam dimensions. The City does not publish a table of acceptable beam sizes: it reviews what the drawings show and checks that the drawings are complete and dimensioned.

A few things worth knowing before the drawings go in:

- The framing plan the City asks for must show footing or foundation type, size and location; joist, beam, post and decking sizes, spacing, direction and span; and the deck-to-house connection if the deck is attached.
- Where helical piles are used, the City asks for a pile layout and specifications as part of the same drawing set.
- The permit fee is $12.75 per $1,000 of assessed valuation of the work, with a minimum of $117.00, and the application goes through the My ServiceOttawa portal with payment at the time of submission.
- The City lists a first review of 5 business days.

If the deck's walking surface will be more than 600 mm (24 in.) above adjacent grade and it is attached to or adjacent to the house, a building permit is required before any work starts. If it is a freestanding deck, a permit is required only if it is also greater than 10 square metres (approximately 108 square feet) in area and more than 600 mm above grade. Either way, no beam size is final until it appears on drawings that have cleared the City's review.

The most useful question to put to any designer or engineer before engaging them: ask them to walk you through how they will size the beams given your deck's span, load and soil conditions, so you understand what is driving the numbers on the drawings.

Q2

Why does my Barrhaven deck feel bouncy underfoot?

We can't tell you why from here: a bounce can come from the framing, the connections or the boards, and none of it can be confirmed without someone looking at the structure. The list below is what to have checked, not a diagnosis.

The 2024 Ontario Building Code sets a deflection limit for deck beams, joists and decking serving a single dwelling unit of 1/240 of the span. That fraction is the maximum sag allowed under load. The Code also requires that a deck serving a single dwelling unit be designed for the specified roof snow load or 1.9 kPa, whichever is greater.

A few things worth having a builder look at specifically:

- the joist size, spacing and span, and whether any joists are notched, cracked or showing signs of decay at the ledger or beam connection
- the beam size and how it is supported at the posts
- the ledger connection to the house, including whether fasteners have pulled or corroded
- the decking board thickness and whether boards have cupped or softened

Today, an Ottawa deck attached to the house with a walking surface more than 600 mm (24 in.) above adjacent grade needs a permit, and any structural repair that goes beyond replacing like-for-like boards may itself trigger a permit, and the City of Ottawa's Building Code Services can tell you whether your planned repair does.
Before anyone digs for new footings or posts as part of a repair, a locate request must be submitted through Ontario One Call at least five business days in advance. That applies to the homeowner and to any contractor doing the work.

On the structural worry side: if the bounce is accompanied by visible sagging, a guard that moves when you push it, or any sign that the deck is pulling away from the house, stay off it and keep others off until a builder has looked at it in person.

When you get quotes for the repair, the contract should name who applies for any required City permit and who books the three inspections the City requires: the footing or foundation inspection before backfill, the framing inspection at completion of structural framing and guards, and the final inspection. Having that spelled out in writing before work starts removes any doubt about whose job it is.

Q3

When does an Ontario deck design need Part 4 engineering?

When Part 4 Engineering Applies to an Ontario Deck

The 2024 Ontario Building Code covers decks serving a single dwelling unit in Part 9, its prescriptive residential rules. Part 4, the engineered-design section, is required when the deck's conditions fall outside what Part 9 covers. The trigger points are specific, and it is worth knowing them before drawings are started.

The clearest trigger is soil condition. Ontario's Building Code, at sections 9.15.1.1(3) and (4) and 9.4.4.1(3), requires a design that conforms to Section 4.2 where a foundation sits on filled ground, peat or sensitive clay, which includes Leda clay. If the soil at your lot falls into any of those categories, the footing design moves out of Part 9 and into engineered territory. A builder or geotechnical engineer can tell you whether that applies to your specific lot.

The second trigger is the structural framing. Section 9.17.1.1(1)(b) of the Building Code sets the boundary for Part 9 column design: beams carrying loads from not more than two levels of wood-frame decks, where the supported joist length does not exceed 5 metres and the combined snow and occupancy load does not exceed 4.8 kPa. A deck that exceeds any of those limits needs Part 4 design for that element.

Deep foundations are a third trigger. Section 9.4.4.1(3) requires Section 4.2 design where deep foundations are used, or where the footing size falls outside the scope of Part 9. Helical piles are deep foundations, so a deck on helical piles calls for engineered design.

A few other conditions push a deck toward Part 4:

- The deck supports a hot tub. Part 9 has no provision for sizing a deck to carry a filled hot tub's load, so the structure needs a design that accounts for it, confirmed with an engineer and the City's Building Code Services before purchasing the tub.
- The deck supports a roof. The floating-deck footing exemption and the post-anchoring exemption in the Code both exclude decks that support a roof.

Separately, where the guard is a pre-engineered or manufactured product outside the Code's prescriptive requirements, Ottawa's permit list asks for the manufacturer's information and attachment details.
On the permit side, the City of Ottawa asks every applicant to name on Schedule 1 who is taking design responsibility: a BCIN designer, an architect, an engineer or the homeowner exemption. A homeowner may take design responsibility for their own house under the Building Code's homeowner exemption, but that exemption does not apply where more than two dwelling units exist in the building. Where Section 4.2 design applies, that means an

engineered design on the drawings.

If your deck will be attached to the house and its walking surface will be more than 600 mm (24 in.) above adjacent grade, or if it is a raised deck providing principal access to the building, the City of Ottawa requires a building permit: confirm the engineering question with the City's Building Code Services when you submit.

Q4

Snow load on a deck in Ontario: what applies?

Snow Load on an Ontario Deck

The 2024 Ontario Building Code sets the design load for a deck serving a single dwelling unit at the specified roof snow load for the site or 1.9 kPa, whichever is greater. That means the deck is designed for at least 1.9 kPa, or the specified roof snow load if that is greater. Working out that figure for your site is the designer's job, and it goes on the permit drawings.

A few things shape how this plays out for your specific deck:

- Beam, joist and post sizing all follow from the load. The 2024 Ontario Building Code allows Part 9 prescriptive sizing for columns carrying loads from not more than two levels of wood-frame decks where the supported joist length does not exceed 5 m and the combined snow and occupancy load does not exceed 4.8 kPa. Beyond those limits, Part 4 engineered design applies.
- Nothing in Part 9 sizes a deck for a filled hot tub. If a hot tub is going on the deck, confirm with the City's Building Code Services and an engineer before finalising the design.
- The deflection limit for deck beams, joists and decking serving one dwelling unit is 1/240 of the span.

The permit drawings the City of Ottawa requires must show the foundation type, post, beam and joist sizes, spacing and spans, and the deck-to-house connection where applicable. Those drawings, signed off under Schedule 1 by a BCIN designer, an architect, an engineer or the homeowner exemption, are where the snow load calculation gets applied and documented. The City's first permit review takes 5 business days.
If you are comparing two written quotes, lay them side by side and check that each one names the same things: what the footings or piles are (type, depth, diameter), what the decking boards are (species or product, thickness), what the guards and stairs include (height, infill style, number of steps), and whether removal of an existing deck is in scope or excluded.

Q5

Load rules for a deck serving one Ottawa home?

The 2024 Ontario Building Code sets two main load rules for a deck serving a single dwelling unit. First, the deck structure must be designed for the specified roof snow load for the site or 1.9 kPa, whichever is greater. Second,

deflection of deck beams, joists and decking is limited to 1/240 of the span.

Those two figures cover the deck surface and its framing. Guards have their own load requirements. The 2024 Ontario Building Code, Table 9.8.8.2, sets exterior guard loads for a deck serving not more than two dwelling units at a top load of 0.5 kN per metre, or a concentrated load of 1.0 kN applied at any point, and a vertical load of 1.5 kN per metre. Ontario deems guards built to MMAH Supplementary Standard SB-7 to meet the load requirement. Stairs serving not more than one dwelling unit are designed for 1.9 kPa.

A few situations push the design beyond Part 9 of the Code. The 2024 Ontario Building Code section 9.17.1.1(1)(b) limits the Part 9 column rules to beams carrying loads from not more than two levels of wood-frame decks where the supported joist length does not exceed 5 m and the combined snow and occupancy load does not exceed 4.8 kPa. Beyond those limits, Part 4 engineered design applies. A hot tub is one case to raise early: nothing in Part 9 sizes a deck for a filled hot tub, and we found no Code figure for that load. If a hot tub is part of the plan, the deck needs a design that accounts for it, and confirming the approach with the City's Building Code Services and an engineer before purchasing is worth doing.

The snow load in that rule is the specified roof snow load for the site; the designer or engineer on the permit drawings applies it.

On the permit side, the City of Ottawa requires scaled, fully dimensioned drawings that show joists, beams, posts and decking with size, spacing, direction and span. The drawings must also show the deck-to-house connection where the deck is attached. The designer or engineer sizes those members for the loads above.

One thing worth asking any builder before signing: can you show me how the deck framing and guard posts will be sized to meet the load requirements, and who is taking design responsibility on the Schedule 1 for the permit application.

Disclaimer: This guide is provided for informational purposes only by Deck Builders Ottawa. It does not constitute professional advice. Always consult qualified contractors and your local building authority (the City of Ottawa's Building Code Services) before starting any deck project. Decks in Ottawa are built under the 2024 Ontario Building Code (O. Reg. 163/24) and the City's permit and zoning rules. Information is current as of November 15, 2026 and may change. Visit **deckbuildersottawa.ca** for the latest answers.