CITY OF SARNIA
BUILDING AND PLANNING DEPARTMENT

255 North Christina Street
Sarnia, ON N7T TN2
Phone: 519-332-0330
Fax: 519-332-0776
E-mail: building@sarnia.ca
www.sarnia.ca

WOOD DECKS

NOTES

Note:

Wood decks vary in size and area. It is beyond the scope of this booklet to deal with every possible situation. The requirements and construction guidelines that follow are provided to assist you in designing and constructing wood decks which will comply with the regulations. If the nature of your project is different than that contained in this booklet and you are not familiar with the regulations which may be applicable, it is recommended that you contact someone who is knowledgeable in this area.

The Sarnia Building By-law is primarily an administrative document that adopts the Ontario Building Code and related standards to provide construction requirements. Throughout this booklet the information provided is based on the minimum standards set out in the Ontario Building Code and City Zoning By-law. Every effort has been made to ensure the accuracy of information contained in this booklet. However, in the event of a discrepancy between this booklet and the governing Act, Regulation or By-law, the Act, Regulation or By-law will take precedence.

We strongly encourage applicants to discuss their specific projects with staff in the Planning and Building Department of the City of Sarnia prior to commencement.

GENERAL INFORMATION

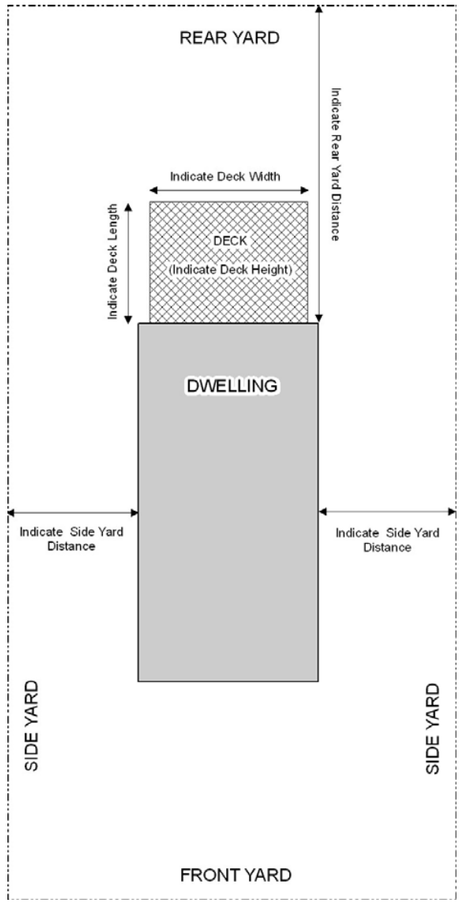
Do I require a building permit for a deck?

A building permit is required for a deck higher than 600mm above average ground level or any deck which will eventually support an enclosed structure with a roof such as a sun room, family room, and if the deck is attached to the dwelling.

Do I still need a building permit if my deck is not attached to my house?

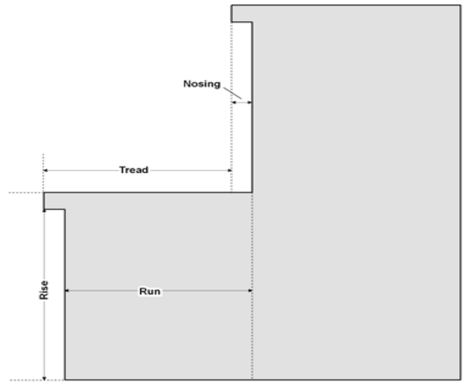
Regardless of whether or not the deck is attached to the house or any other structure on the property, a building permit is required, as noted above.

EXAMPLE OF A TYPICAL SITE PLAN



Are there any requirements for stairs?

The Building Code requires the stair width to be at least 900mm and that treads and risers have uniform rise and run in any one flight with riser heights not exceeding 200mm. The Building Code also requires the minimum run of each tread to be 210mm and the minimum tread width to be 235 mm.

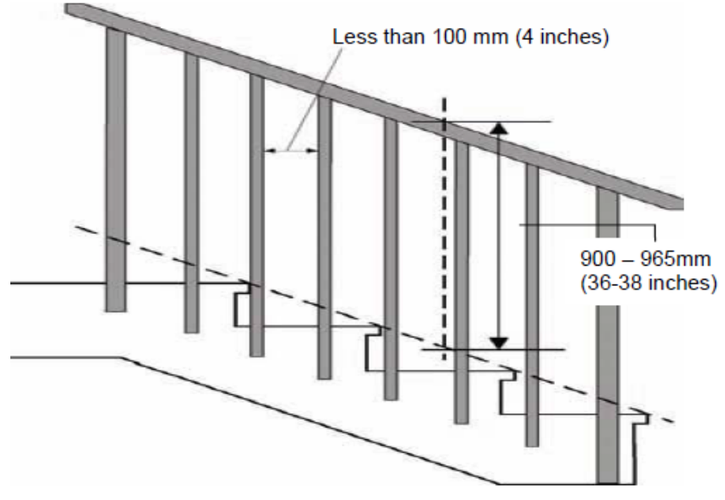


Are guardrails required for stairs?

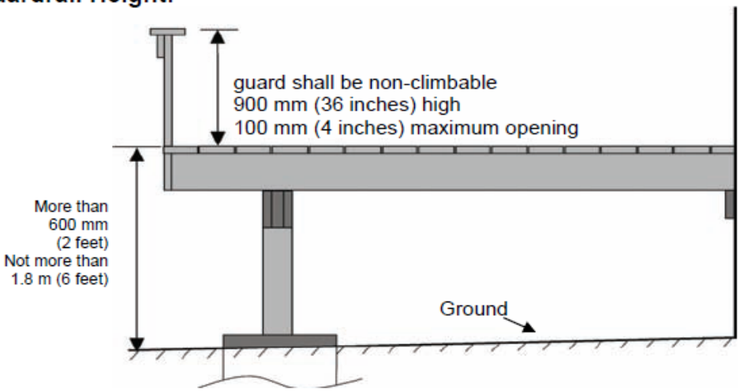
Guards are required on stairs where there is a difference in elevation of more than 600mm to finished ground level. The height of guards for flights of steps shall be 900mm and be measured vertically from the top of the handrail to a line drawn through the leading edge of the treads served by the guard.

Will the stairs also require a handrail?

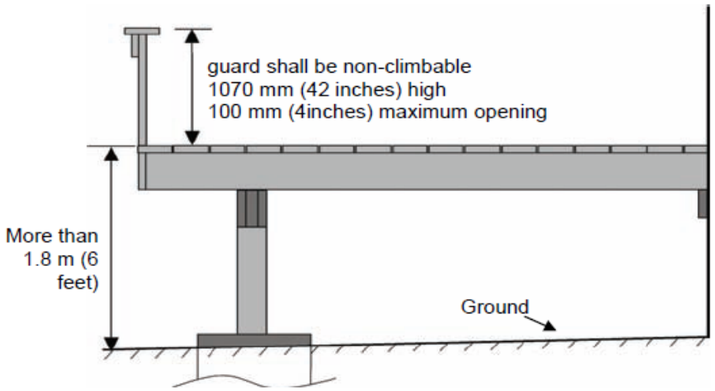
The Building Code states that if any outside stair has more than three risers, a handrail is required on one side of the stair. The handrail is to be located between 800mm and 965mm in height measured vertically above a line drawn through the outside edges of the stair nosings. Stairs with 3 risers or less do not require handrails.



Guardrail Height:

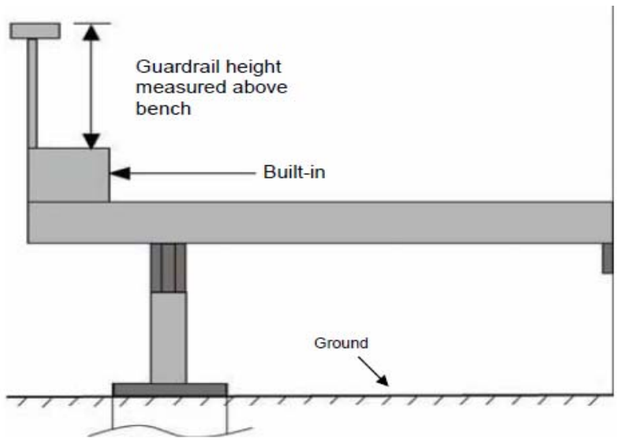


Guardrail



Can a built-in bench serve as a guardrail?

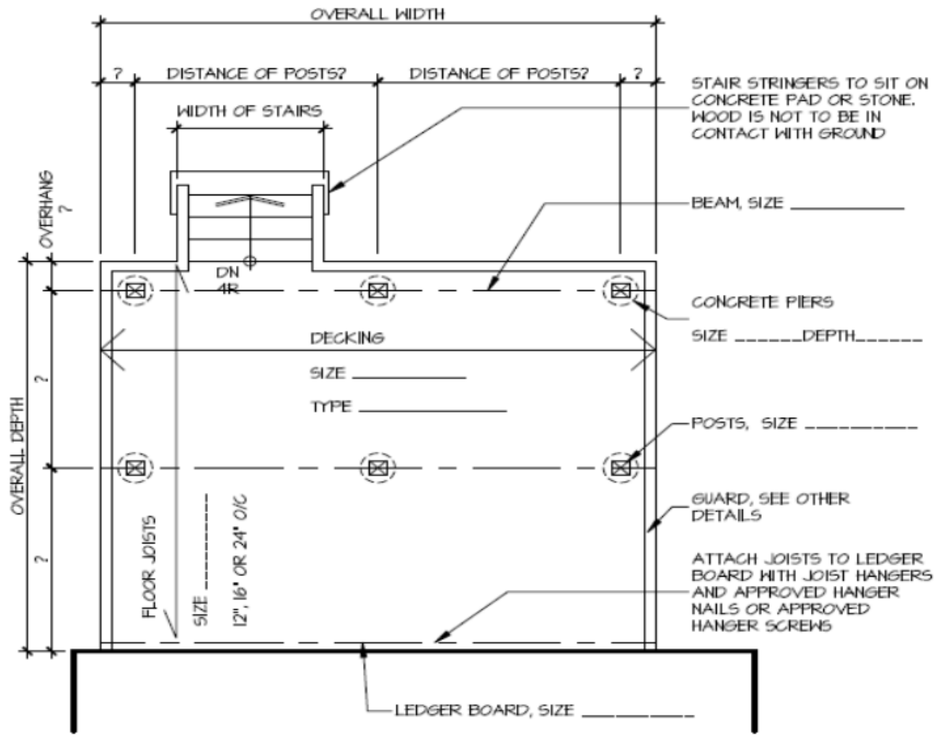
No, unless a guardrail meeting the previously described height and opening requirements is provided above the flat surface of the bench and any openings below the bench also meet the maximum opening requirements.



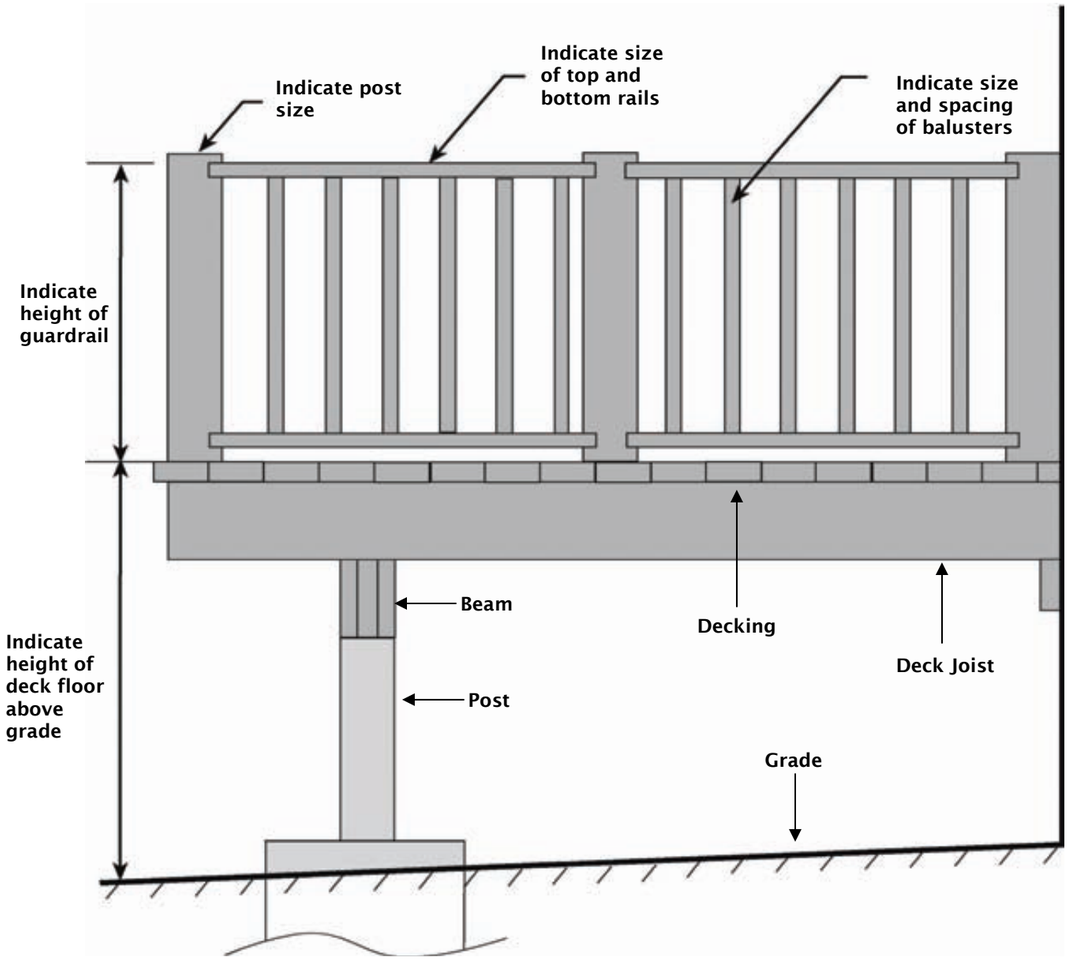
What do the construction and elevation plans have to indicate?

The construction plans must show the overall size of the deck, the size and spacing of the beams, posts, deck joists, the type of foundation you have chosen to support the deck and the location of any stairs leading to or from the deck. The elevation plan must show the height of the deck floor above finished ground level at its highest point and the height and type of guardrail being used around the perimeter of the deck.

TYPICAL CONSTRUCTION PLAN



TYPICAL DECK ELEVATION PLAN



NOTE: Guard must be able to resist 0.75 kN (168.6 lbs) of force at any point

Do the deck members need to be pressure treated?

When the vertical clearances between the wood elements and the finished ground level is less than 150mm or when the wood elements are not protected from exposure to precipitation they must be pressure treated with a preservative to resist decay.

GUARDRAILS / HANDRAILS

What is the difference between guardrails and handrails?

Guardrails are intended to prevent persons from falling off the edge of a stair or a raised floor area such as a deck. The guardrail must be able to withstand the pressure of a human body applied horizontally to it. Handrails are installed in areas where a hand grip is needed such as at a stair.

Will my deck require guardrails / handrails?

Guard / handrails are only required on decks that are more than 600mm above finished ground level.

What if my deck is less than 600mm above finished ground level?

A guardrail is not required but, if one is provided, the openings through the guards have restrictions. These openings must either be less than 100mm or greater than 200mm . This is to prevent children from accidentally getting their head stuck in the guard.

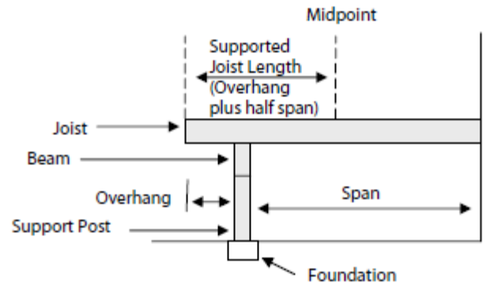
What are the construction requirements for a required guardrail?

Required guardrails shall not be less than 900mm high where the walking surface of the deck is not more than 1800mm above the finished ground level, and 1070mm high where the walking surface exceeds 1800mm Openings in the guardrail must prevent the passage of a spherical object having a diameter of 100mm. Required guardrails shall be designed so no member attached or opening will facilitate climbing. Pre-manufactured guardrails must have CSA, ULC OR MEC approval. If you are purchasing such a system please obtain a copy of such approvals from the supplier to provide the City of Sarnia at the time of inspection.

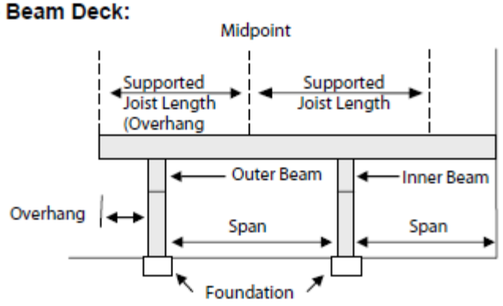
Further Questions:

For prescribe standards regarding guards design refer to SB-7 of the Ontario Building Code or consult with the City of Sarnia Building Department.

Single Beam Deck:



Multiple Beam Deck:



Beam Size mm (ft)				
Joist Size @ 400mm (16")	**Pier Spacing**			
	1.2m (4')	1.8m (6')	2.4m (8')	3m (10')
38 x 140 (2 x 6)	2- 38 x 140 (2- 2 x 6)	2- 38 x 140 (2- 2 x 6)	2- 38 x 140 (2- 2 x 6)	2- 38 x 184 (2- 2 x 8)
38 x 190 (2 x 10)	2- 38 x 140 (2- 2 x 6)	2- 38 x 140 (2- 2 x 6)	2- 38 x 184 (2- 2 x 8)	2- 38 x 184 (2- 2 x 8)
38 x 240 (2 x 10)	2- 38 x 140 (2- 2 x 6)	2- 38 x 184 (2- 2 x 8)	2- 38 x 235 (2- 2 x 10)	2- 38 x 286 (2- 2 x 12)
38 x 305 (2 x 12)	2- 38 x 140 (2- 2 x 6)	2- 38 x 235 (2- 2 x 10)	2- 38 x 286 (2- 2 x 12)	—
Note: Joist size and spacing limits the allowable span, L, in the figure above				

Pier Size mm (ft)				
L/2 + C	**Pier Spacing**			
	1.2m (4')	1.8m (6')	2.4m (8')	3m (10')
1.2m (4')	205 (8)	254 (10)	254 (10)	305 (12)
1.8m (6')	254 (10)	305 (12)	305 (12)	355 (14)
2.4m (8')	254 (10)	305 (12)	355 (14)	—
3m (10')	305 (12)	355 (14)	—	—

ZONING

Deck Location:

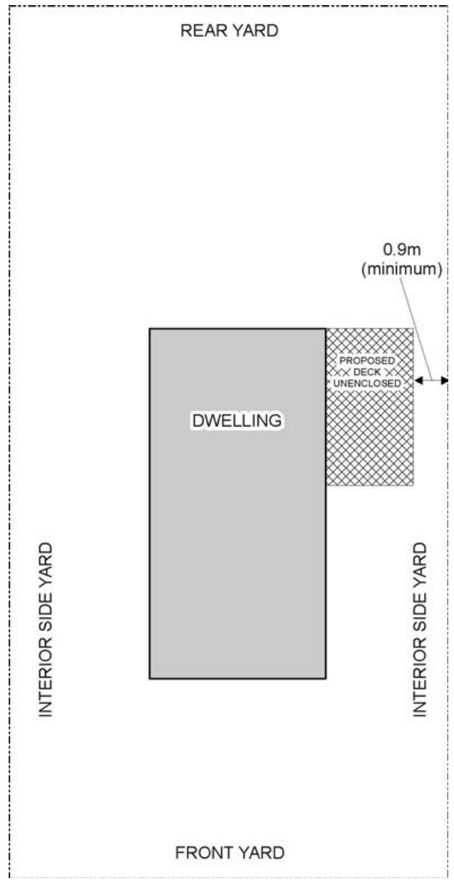


Figure 1

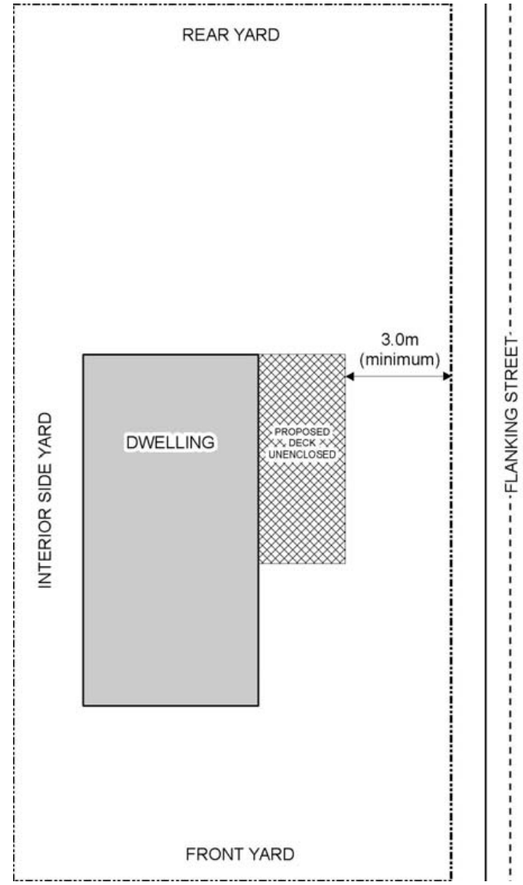


Figure 2 Corner Lot

Side Yard Deck

A deck shall be located in any yard not closer than 0.9m to the side lot line (Figure 1) except that if the side lot line abuts a flanking street the setback shall be 3m (Figure 2).

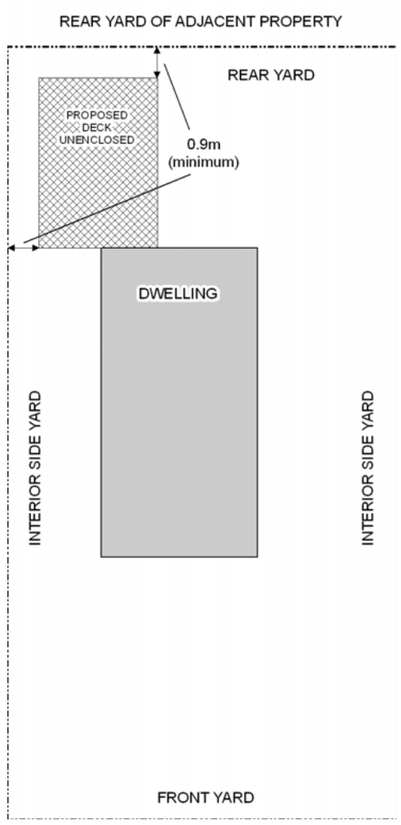


Figure 3

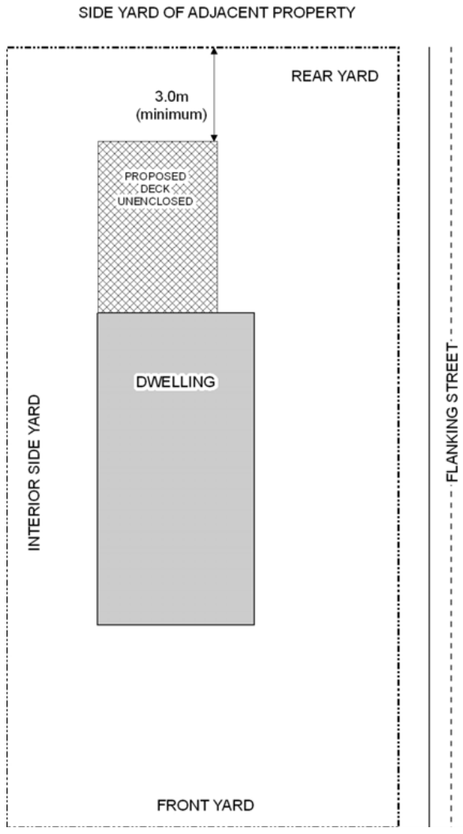


Figure 4 Corner Lot

Rear Yard Deck

A deck in any rear yard shall be located not closer than 0.9m to the rear lot line (Figure 3). except that if the rear lot line forms part of the side lot line of an adjacent property the setback shall be 3m (Figure 4).

What size of deck joists do I require?

The size of the joists is governed by the distance they have to span and the spacing at which the joists are installed. Joist spans are measured from face of support to face of support (in case of a wood deck from face of beam to face of beam, or from face of beam to face of a ledger board).

Another item you should take into consideration when selecting the type, size, and spacing of your joists, is the type of material you intend to use as decking. Check with your lumber dealer to ensure that the decking you select will not sag significantly between the joists as a result of the joist spacing you have chosen

Maximum allowable spans for deck joists

Joist Size mm (ft)	Joist Spacing mm (ft)	
	400 (16”)	600 (24”)
38 x 140 (2 x 6)**	2845 (9’ 4”)	2489 (8’ 2”)
38 x 184 (2 x 8)	3353 (11’ 0”)	3200 (10; 6”)
38 x 235 (2 x 10)	3962 (13’ 0’)	3759 (12’ 4”)

**** 38 x 140 (2 x 6) joist are limited to decks less then 1.2m (2 ft) above grade.**

Can I have joints in the beam?

Yes. However, joints are only permitted on multi-span beams. When joints are necessary, they should be situated on a support post. On multi-ply laminated beams the joints should be staggered so the joints occur on alternate supports. If it is intended to project the beam beyond the end supports, there should be no joints on the end support.

How far can I project the beam beyond the end support?

The beam can project up to a maximum of 600mm beyond the end support.

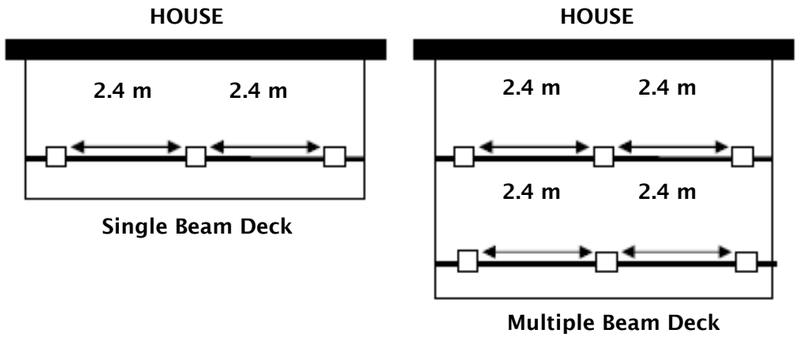
How should beam laminations be nailed together?

Individual members must be nailed together with a double row of nails at least 89mm apart in each row with the end nails located between 100mm and 150mm from the end of each piece.

STRUCTURAL

How far apart can these pads, piles, or piers be installed?

The location of the pads, piles, or piers can vary depending on the size and type of material used for the beam that spans from one pad, pile, or pier to the other and the amount of floor area that each individual pad, pile, or pier is required to carry.



What size posts should I use and how should they be anchored?

Posts, if used, should be at least the width of the beam, centered on the pad, pile, or pier, and securely fastened to the beam by means of toe-nailing, wood gussets, angle brackets, or other equivalent method. Posts exceeding 1.5m in height should be 140mm x 140mm and braced to each other or up to the beam and floor or, alternatively, they should be anchored to the pad, pile, or pier in order to prevent them from shifting at the bottom.

How far can the joists project beyond the face of the outside beam?

Joists are limited to a 600mm projection. If you are planning to eventually enclose all or a portion of the deck with a roofed structure which could carry snow, the Building Code states that the joists can only project 400mm where 38mm x 184mm joists are used and 600mm where 38mm x 235mm or larger joists are used. The projection of 38mm x 140mm joists would require engineering analysis to determine if the floor assembly would be sufficient to carry the superimposed roof loads.

*Note that even if you are not planning to enclose the deck in the future any projections beyond those indicated above would require engineering analysis.

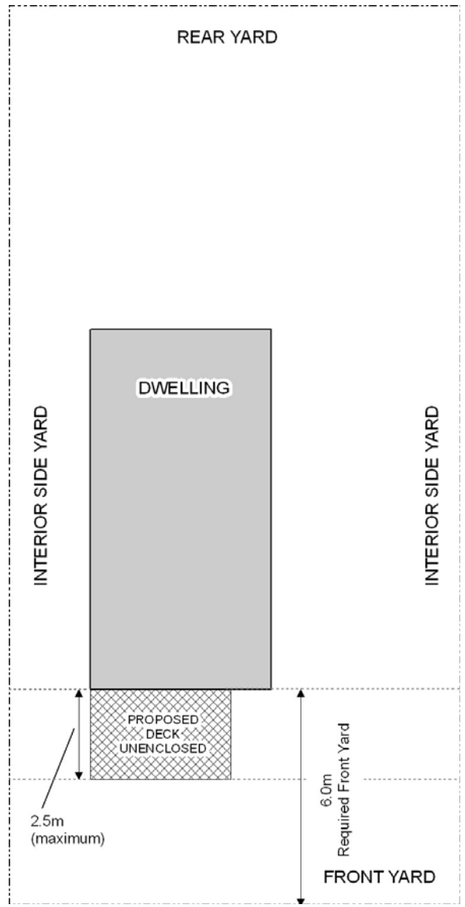


Figure 5

Front Yard Decks

A deck in any front yard shall not be permitted to project more than 2.5m into the required front yard (Figure 5).

If I cannot meet the zoning requirements, what are my alternatives?

Contact the Planning Department for options for variance.

FOUNDATIONS

(Surface pads are not recommended, but allowed under these conditions)

OPEN DECKS UNDER 600 MM IN HEIGHT: Surface Pad Foundations

Surface pad foundations are only permitted when an open deck is

- not more than one storey
- not more than 55m^2 in area
- not more than 600mm in distance from finished ground to the top of decking
- not supporting a roof; not attached to the house; or another structure

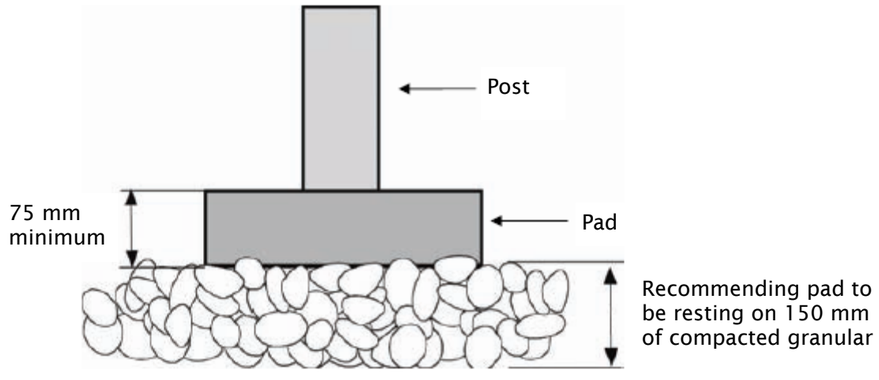
When using surface foundations, access must be provided to the foundation to permit re-levelling of the deck platform. It can be provided either by:

- a passageway with a clear height and width under the deck platform of not less than 600mm by installing the decking in a manner that allows easy removal (e.g. screws)

What are the recommendations for a surface pad foundation?

Surface pads of concrete should be a minimum of 75mm thick. Wood posts and/or wood beams closer than 150mm to the ground must be pressure-treated preservative lumber to prevent the premature deterioration of the post or beam, which will be bearing on the pad.

Surface Pad Foundation:

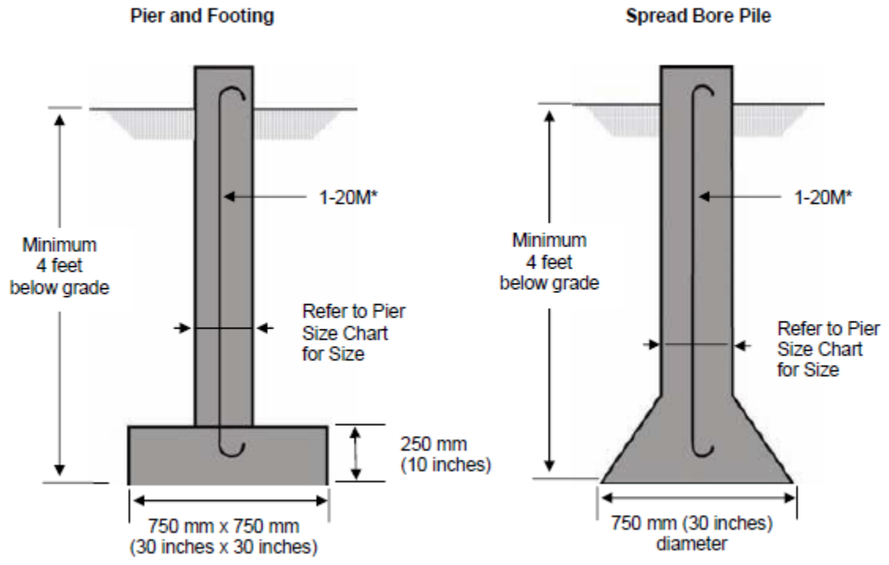


Can a pergola or a trellis type structure be added to a deck on pads?

No. A deck on pads is not permitted to support any additional structures. If your long term goal is to enclose all or a portion of your deck with a trellis, a screened in area or a sunroom, you must use a pile or pier foundation.

OPEN DECKS OVER 600 MM IN HEIGHT: Pile or Pier Foundations

When the top of the deck is more than 600mm above the ground, the foundation depth must be at least he depth of frost penetration – 1.2m . A pier or pile type foundation or alternatively a foundation designed by a Professional Engineer is required.



*** refers to one 20mm diameter reinforcing bar (part of the better building practice)**