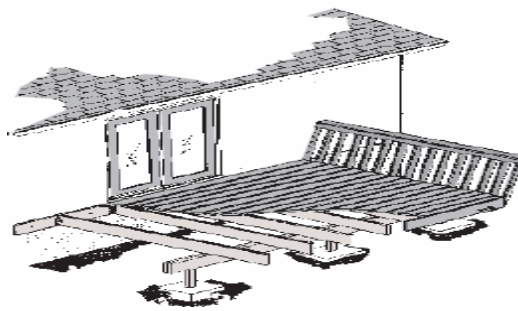




Wood Decks



Municipality of Roblin Planning Department



Construction and guidelines for wood decks for residential dwellings.

June 2020

GENERAL INFORMATION

NOTE: Throughout this booklet the Manitoba Building Code will be referred to as the Building Code.

Decks vary in size and area and it is beyond the scope of this publication to deal with each possible situation. The Roblin Planning Department requirements and construction guidelines that follow are provided only to assist you in designing and constructing a deck which will comply with the regulations.

The ultimate responsibility for compliance rests with the owner and/or contractor.

Do I require a building permit for a deck?

YES! A building permit is required for any deck which is higher than one riser (approximately 200mm/8in.) above average ground level OR any deck which will eventually support an enclosed structure with a roof such as a sun room, family room etc. This applies to all decks even if they are not attached to any structure.

Are overhead power supply conductors or Hydro meters a cause for concern?

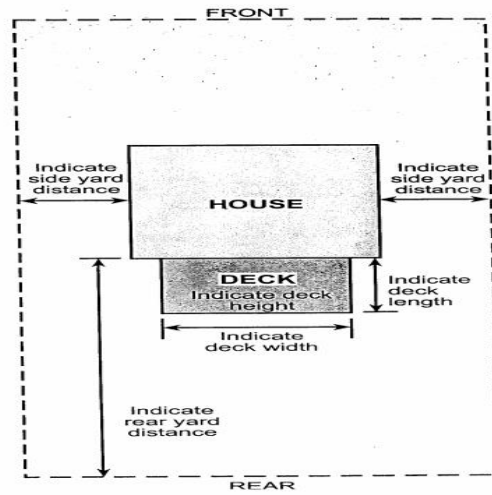
YES! For information on overhead height requirements of location of Hydro meter, contact your local Manitoba Hydro District Operating Centre at the phone number listed on your Manitoba Hydro invoice.

What information do I have to bring with me in order to make application for a building permit?

You must present one copy of a Surveyor's Building Location Certificate.

As an alternative, a well-drawn site plan showing all property dimensions, location of all buildings and the location and size of the proposed deck may be acceptable. See **FIGURE A**.

FIGURE A: Site Plan



GENERAL INFORMATION

What do the construction and elevation plans have to indicate?

The construction plans must show the size of the deck, the size and spacing of the beams, posts and floor joists, the species and grade of material being used, 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.

See **FIGURES B and C**

FIGURE B: Typical Construction Plan

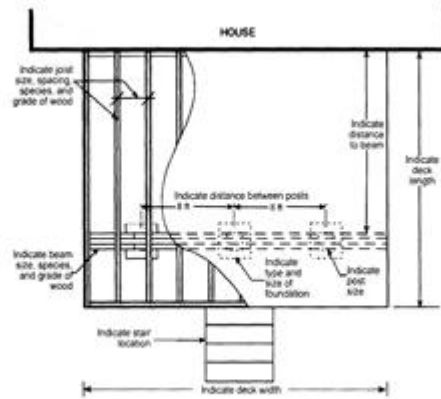
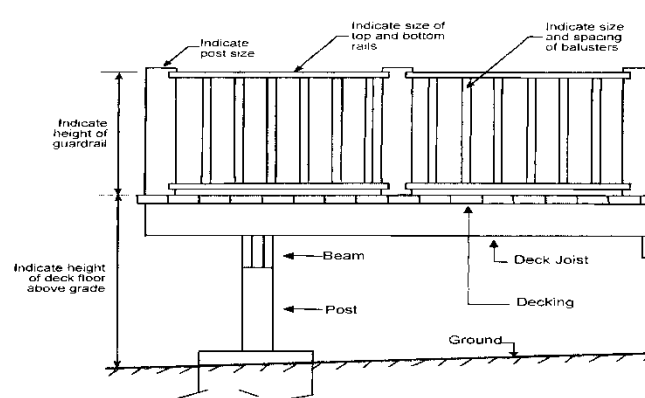


FIGURE C: Typical Deck Elevation



Every lot is located in a certain zone and each zone has certain requirements, including setbacks, which must be met by any project.

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

Change the location;

Change the size;

OR

Vary the requirements by applying for a Zoning variance. This application can be made at the Roblin Planning Department office.

FOUNDATION

OPEN DECKS UNDER 1200 MM (4 FT.) IN HEIGHT

Surface Pad Foundations

Surface pad foundations are only permitted when an open deck is:

- a) not more than one storey;
- b) not more than 55msq. (592 ft sq) in area;
- c) not more than 1200 mm (4 ft) in distance from finished ground to the underside of the joist;
- d) not supporting a roof, and
- e) not attached to another structure, unless it can be demonstrated that differential movement will not adversely affect the performance of that structure, as determined by the authority having jurisdiction.

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

- a) a passageway with a clear height and width under the deck platform of not less than 600 mm (2 ft); or
- b) by installing the decking in a manner that allows easy removal (eg. screws)

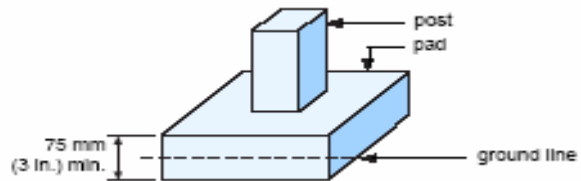
If your long range plans are to enclose all or a portion of your deck with a screened in area, sunroom, or extension to your dwelling, you must use an approved foundation as described further in this pamphlet, or you must retain a Professional Engineer registered in the Province of Manitoba to design an adequate foundation.

Should you decide to retain an Engineer, bring 1 copy of the design under seal and signature when applying for your building permit.

What are the recommendations for a surface pad foundation?

Surface pads should be made of concrete or other material which will not prematurely deteriorate as a result of contact with the soil. As show in **FIGURE 1**, they should be a minimum 75 mm (3 in) thick and be installed so that the top surface is slightly above adjacent finished ground level in order to prevent premature deterioration of the post or beam which will be bearing on the pad.

FIGURE 1:



Foundation pads are available at most lumber dealers.

Note: **Cantilever Floor Joists with No Support**

To cantilever floor joists with no support underneath for an apartment veranda or an upper floor deck etc.--the tail joists for the cantilevered member must extend inward at a distance equal to not less than 6 times the length of the cantilever and nailed to an interior double header joist.

Ex. If you wish to cantilever 4 feet out with no supports underneath, the lumber must extend inward a minimum of 24 feet, unless otherwise designed and stamped by a Manitoba Certified Engineer.

FOUNDATION

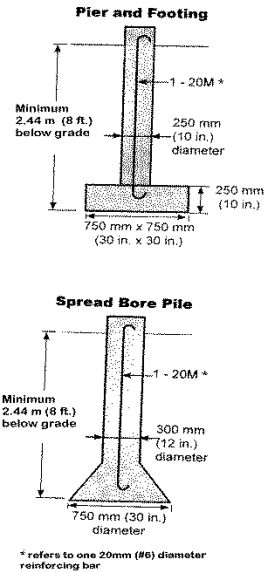
OPEN DECKS OVER 1200 MM (4 FT) IN HEIGHT

Pile or Pier Foundations

When the underside of the deck joists are more than 1200 mm (4 ft) above the ground, the foundation depth must be at least the depth of frost penetration—2.44 m (8 ft). A pier or pile type foundation, as shown in **FIGURE 2**, or alternatively a foundation designed by a Professional Engineer is required.

FIGURE 2:

Piles or Piers



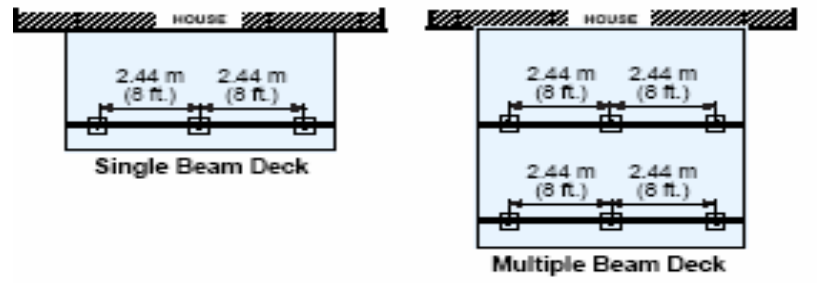
What other options are available?

A foundation using "ground anchors" may be permitted providing the anchor extends below the depth of frost penetration and has been properly tested. You will need to retain a Manitoba Certified Engineer to do load calculations to determine that the loads transferred to the foundation do not exceed the loads for the tested anchors if your future plans are to enclose the deck with a sunroom, screened patio, or any type of roof structure. Some ground anchors are approved for decks only (no roof) without needing engineering, but all anchors must be installed by a certified installer with a report provided.

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

The location of the pads, piles or piers can vary depending on the size and the 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. The examples shown in **FIGURE 3** are based on the beam supports having a maximum spacing of 2.44 m (8ft) on center. The beam table that follows indicates beams which are adequate for this spacing.

FIGURE 3:



Can I vary from this 2.44 m (8ft) spacing?

Yes, you can place the pads or piers closer together and still maintain the beam sizes used in this publication for 2.44m (8ft) spacing. Alternatively, if wish to place them further apart, you would have to install a beam which is adequate for that longer span. The beam sizes indicated in this publication are common practices that have been calculated using common engineering principles. Other variations are possible provided the deck is designed and installed to carry a live load of 1.9 kPa (40 psf).

If you wish to increase the spacing of the pads, piles or piers, or if you wish to reduce the beam sizes indicated in the beam tables, you have to retain someone who is familiar with the required engineering calculations.

Can I used multiples of 2.44m (8ft) spacing and make my deck deeper and/or wider?

Yes you can, provided you continue to meet all of the same construction requirements and provided you do not exceed the area that is permitted for your particular property.

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

Posts should be 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 methods. Where posts exceed 1.22 m (4ft) in height, they should be braced to each other, or up to the beam and floor, and, they should be anchored to the pad, pile or pier in order to prevent them from shifting at the bottom. The sizes of support posts will vary due to the size of the beam used.

What size of beams do I need?

The beam table (**TABLE 2**), is intended for single beam decks and multiple beam decks having supports at 2.44 m (8ft) intervals along the beam. See also **FIGURE 4**.

TABLE 2-Deck Beam Sizes (1)

The building code does not allow for beams less than 3 ply 2x8, however common practices are as follows UNLESS: the deck is more than 4 feet off the ground, a roof type of structure will be going over the deck or a portion of the deck at any point in time or a hot tub is being installed on the deck, then a minimum beam size of 3 ply 2x8 is required.

Maximum Supported Joist Length (2)	Beam Size (3)
2.44 m (8 ft)	3—38 x 140mm (3 - 2 x 6) Or 2--38 x 184mm (2 - 2 x 8)
3.05 m (10 ft)	3—38 x 184 mm (3 - 2 x 8) Or 4---38 x 140 mm (4 - 2 x 4)
3.66 m (12 ft)	3—38 x 184mm (3 - 2 x 8) Or 2—38 x 235 mm (2 - 2 x 10)
4.27 m (14 ft)	4—38 x 184 mm (4 - 2 x 8) Or 3---38 x 235 mm (3 - 2 x 10)
4.88 m (16 ft)	3—38 x 235 mm (3 - 2 x 10) Or 2—38 x 286 mm (2 - 2 x 12)

Notes to TABLE 2:

1. This table requires beams with supports every 2.44 m (8ft) or less.
2. Supported joist length means half the span of joists supported by the beam plus the length of the overhang beyond the beam. (See FIGURE 4)
3. This table is for use with Spruce-Pine-Fir lumber grades 1 and 2.

Can I have joints in the beam?

Yes. However, when joints are necessary, they should be situated on a support (post). On multiple-ply laminated beams the joints should be staggered so that 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?

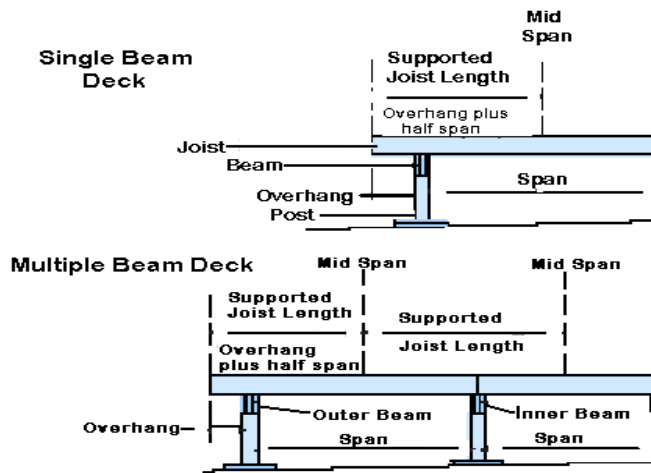
The building code does not allow for a beam to project beyond the end of the support, however common practice for a deck only (no roof, no hot tub etc.) is the allowance of a beam to project a maximum of 600 mm (2 ft) beyond the end of the support.

STRUCTURAL

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

The Building Code states that joists can only project 400mm (16 in) where 2x8 joists are used, and 600mm (2ft) where 2x10 or larger joists are used. The projection of 2x6 joists is not mentioned in the Building Code, therefore not allowed, however common practice for construction of a deck would allow a 6 inch projection provided a roof structure or hot tub etc. will not be placed on the deck or any portion of the deck.

FIGURE 4:



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 (6in) or when the wood elements are not protected from exposure to precipitation, they must be pressure treated with a preservative to resist decay.

What size of floor joists do I require?

The size of the floor joists are governed by the distance they have to span, and the spacing at which the floor joists are installed. **TABLE 3** indicates some common species and sizes of wood and the acceptable span distances for wood decks. 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 face of beam to face of ledger).

Another item you should take into consideration when selecting the type, size, and spacing of your floor joists is the type of material that 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.

TABLE 3:Deck Floor Joist Spans

Commercial Designation	Grade	Joist Size (in.)	Joist Spacing & Allowable Span			Example: If you are using spruce 2x6 floor joists with a spacing of 24 inches apart, they can span up to 8 feet 2 inches.
			12in	16in	24in (spacing)	
Douglas Fir-Larch	No.1 and No.2	2 x 4	6'6"	6'	5'5"	
		2 x 6	10'1"	9'6"	8'7"	
		2 x 8	12'1"	11'6"	11'	
		2 x 10	14'5"	13'8"	13'0"	
Spruce-Pine-Fir	No.1 And No.2	2 x 4	6'1"	5'7"	5'2"	
		2 x 6	9'7"	8'10"	8'2"	
		2 x 8	11'7"	11'	10'6"	
		2 x 10	13'8"	13'	12'5"	

HOT TUBS

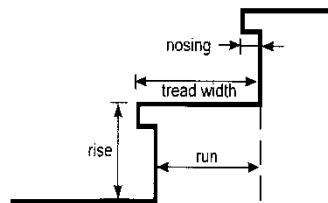
If at any point in time a hot tub is going to be installed on a deck, provisions need to be made to ensure the deck is structurally able to hold the extra weight. Please indicate on the building permit if a hot tub is going to be installed and what provisions will be made to support the extra weight of the hot tub.

DESIGN

Are there any requirements for stairs?

The Building Code requires that treads and risers have uniform rise and run in any one flight, with riser heights not exceeding 200 mm (8 in). The Building Code also requires the minimum run of each tread to be 210 mm (8 ¼ in.) and the minimum tread width to be 235 mm (9 ¼ in.) See **FIGURE 5**.

FIGURE 5: Stair Detail



If: The run is 210 mm (8 ¼ in.)
 Then: A nosing of at least 25 mm (1 in.) must be provided.

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 against it.

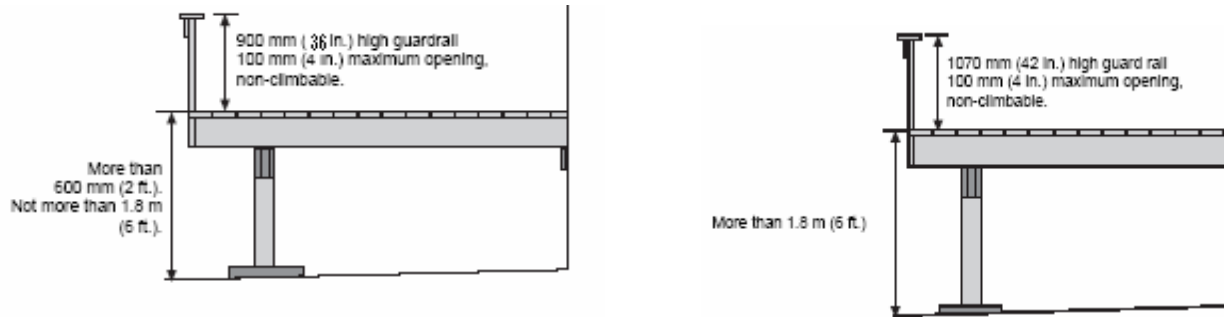
Handrails are required to assist persons in ascending or descending stairs. They offer a continuous handhold to support persons who may stumble on the stair.

Will my deck require guardrails?

The need for guardrails is determined according to the height of the deck floor above the finished ground level as follows:

- (a) Decks with floor surfaces that do not exceed 600 mm (2 ft) above the finished ground level at any point around their perimeter do not require guardrails.
- (b) Decks with floor surfaces which are more than 600mm (2 ft) but not more than 1.8 m (6 ft) above the finished ground level at any point around their perimeter require a guardrail at least 900 mm (36 in.) in height. (See **FIGURE 6A**)
- (c) Decks with floor surfaces which are more than 1.8 m (6 ft) above finished ground level at any point around their perimeter require a guardrail at least 1070 mm (42 in.) in height. (See **FIGURE 6A**).
- (d) Openings between balusters of the guardrail must be 4"(100mm) or less as to prevent the passage of a spherical object having a diameter of 100 mm (4 in.).
- (e) Guardrails must be designed so that no member, attachment or opening facilitates climbing. No lattice or horizontal members would be permitted unless spaced adequately to ensure its non-climbable.
- (f) Spacing of rail posts varies depending on the type of railing system used. Pre-manufactured railings should be installed based on the Manufacturer Installation Instructions. For other types of rail posts, common practice is spacing between 4-6 feet.

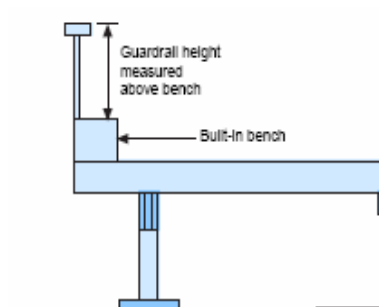
FIGURE 6A: Guardrail Height



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. (See **FIGURE 6B**)

FIGURE 6B: Guardrail and Bench



What is the difference between a built-in bench and a chair or a table?

If a chair or a table is in a hazardous position, you have the option of moving them. A built-in bench does not give you that option.

Are guardrails required for stairs?

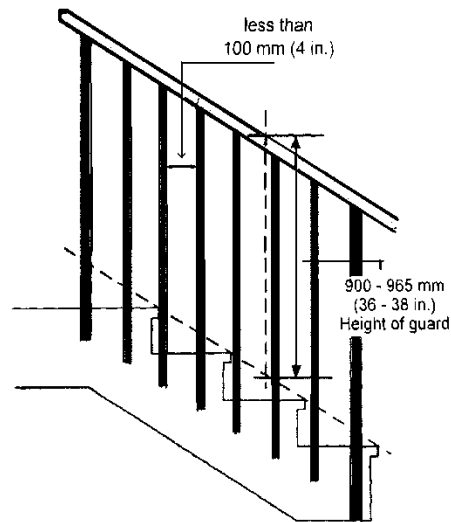
Stairs which have more than six (6) risers and which exceed 600 mm (2ft) above the finished ground level also require guardrails. These guards are to be at least 900 mm (36 in.) in height measured vertically above a line drawn through the outside edges of the stair nosing. If the stairs have an intermediate landing, the guardrail must be at least 900 mm (36 in.) in height over the landing area. Openings situated below these heights are to be such as to prevent the passage of a spherical object having a diameter of 100 mm (4in.) and must be non-climbable. (no lattice!)

Will the stair also require a handrail?

The Building Code states that if any outside stair has more than three (3) risers, a handrail is required on one side of the stair. As shown in FIGURE 7, the handrail is required to be a minimum of 900 mm (36 in.) in height measured vertically above a line drawn through the outside edges of the stair nosing. Stairs with three (3) risers or less do not require handrails.

In those cases where a stair also requires a guardrail, a reasonable solution is to provide a guardrail, which also acts as a handrail.

FIGURE 7: Combined Guardrail/Handrail



Every effort has been made to ensure the accuracy of the information contained in this pamphlet. However, in case of a discrepancy between this pamphlet and the respective By-laws or the Manitoba Building Code, the By-law and Manitoba Building Code will take precedence.

Please call for further information.

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