

## Non-Sheltered Wood Decks

This booklet outlines specific regulations concerning the construction of wood decks for single-family dwellings.

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**NOTE:** The Manitoba Building Code and related standards provide the construction requirements. Throughout this booklet, the Manitoba Building Code including the Manitoba Amendments 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 every possible situation. The construction guidelines and Building Code requirements that follow are provided to assist you in designing and constructing a deck, which will comply with the regulations.

## **GENERAL INFORMATION**

### **Do I require a building permit for a deck?**

YES! A building permit is required for any deck which is 2 feet or higher above average ground level, or is attached to any structure or building, or which will eventually support an enclosed structure with a roof such as a sunroom, family room, etc.

**NOTE:** Decks that serve as a landing for a front or back door and are 50 ft<sup>2</sup> or less in total area are exempt from permit fees, but their construction must conform to the same code requirements used for the framing of stairs, guards, and deck railings and is to be constructed with outdoor wood.

### **What if the deck is not attached to my house, do I still need a building permit?**

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

### **Where can I obtain a building permit?**

Permits may be obtained by filling out a permit application and submitting the required documentation to the South Interlake Planning District office.

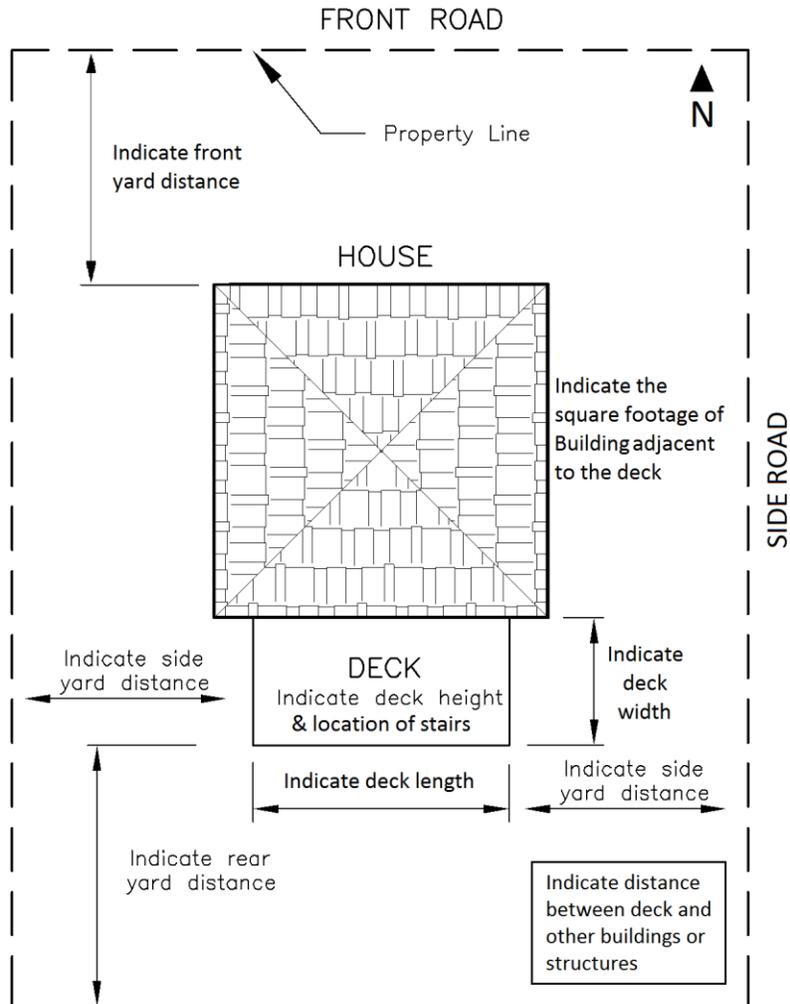
### **Are overhead power supply conductors or Hydro meters a cause for concern?**

YES! If you plan to build a deck beneath overhead power supply conductors, a clearance of 11ft. 6in. must be maintained between the finished deck surface and the conductors. If the deck is to be installed beneath a Hydro meter, it may be necessary to relocate the meter to maintain the proper meter height or relocate the entire Electrical Service. For more information contact Manitoba Hydro.

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

1. Completed application form;
2. Site Plan. See Figure-1;
3. Details and elevation plans. One (1) paper or one (1) PDF copy of plans, formatted to an 11" x 17" size or smaller. For plans formatted to a larger size, two (2) paper copies or one (1) paper copy and one (1) PDF copy are required;
4. Status of Title (dated within 30 days of complete application);
5. Letter of authorization (required if someone is applying on behalf of the landowner);
6. Total construction value (i.e., final project costs including all material and labour);
7. Application and Development Permit Fees in accordance with the SIPD's Fee Structure By-Law.

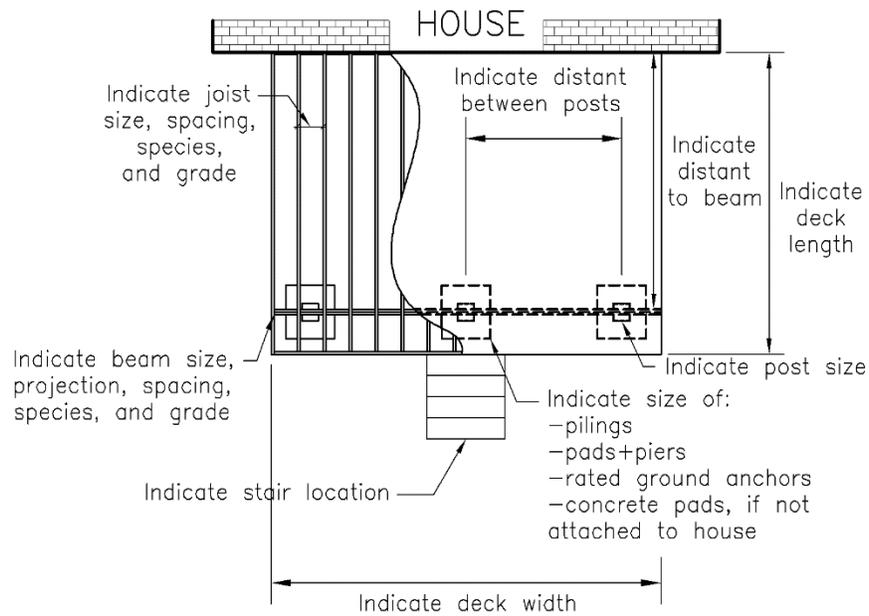
Figure-1. Typical Site Plan



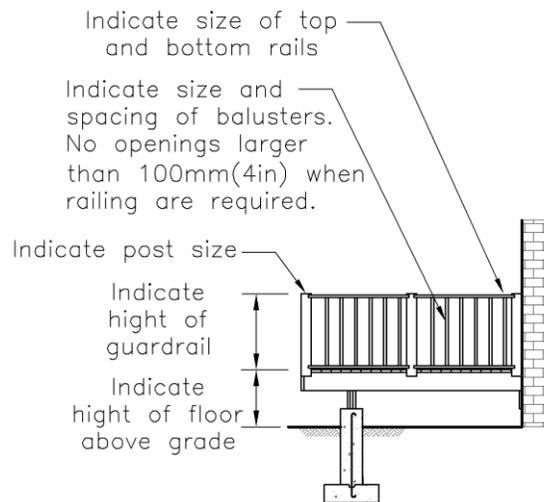
### What do the construction and elevation plans have to indicate?

The construction plans must show the size of the deck, the size and spacing of the beams, posts and floor joists, the type and grade of material being used, and the type of foundation you have chosen to support the deck (if using screw piles, list the Manufacturer, Length and Baring Capacity). Also show the height of the deck floor above finished ground level at its highest point, the height and type of guardrail being used around the perimeter of the deck and the location of any stairs leading to or from the deck. See Figure-2 & 3.

**Figure-2. Typical Construction Plan**



**Figure-3. Typical Elevation Plan**



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

To vary these requirements, you must apply for a Zoning Variance. This application must be made at the South Interlake Planning District Office.

**What types of foundation are normally required for wood decks?**

In general, foundations for an open unenclosed deck consist of either:

- a) Surface Pads, or;
- b) Concrete Piles or Pad+Piers, or Rated Ground Anchors.  
(Ground Anchors design must be stamped by a professional engineer)

**What are the restrictions for the use of a surface pad foundation for a wood deck?**

- 1) The deck or other accessible exterior platform cannot be more than 1 Storey or 590 ft.<sup>2</sup> (55m<sup>2</sup>) in area;
- 2) The deck cannot support a roof;
- 3) The deck cannot be attached to the house or another structure unless it can be demonstrated that differential movement will not adversely affect the performance of the house or other structure;
- 4) Decks on surface pad foundations must be constructed with supports that provide for re-leveling of the platform. An access shall be provided to the foundation positions to allow for re-leveling of the platform. This passageway shall have a clear height of 2 feet under the platform with a width of not less than 2 feet;
- 5) Support posts to be suitably cross-braced to ensure lateral stability.

**When are pile or pier foundations required for a deck?**

- 1) If the deck supports a roof;
- 2) 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 area, and the enclosed area will be attached to the main area via the walls or the roof, then a pile, or pad and pier, or rated ground anchor foundation as described further in this pamphlet will be required.

**NOTE:** You may use the information in this booklet to design the foundation and deck or you can retain a Professional Architect or Engineer to do the design.

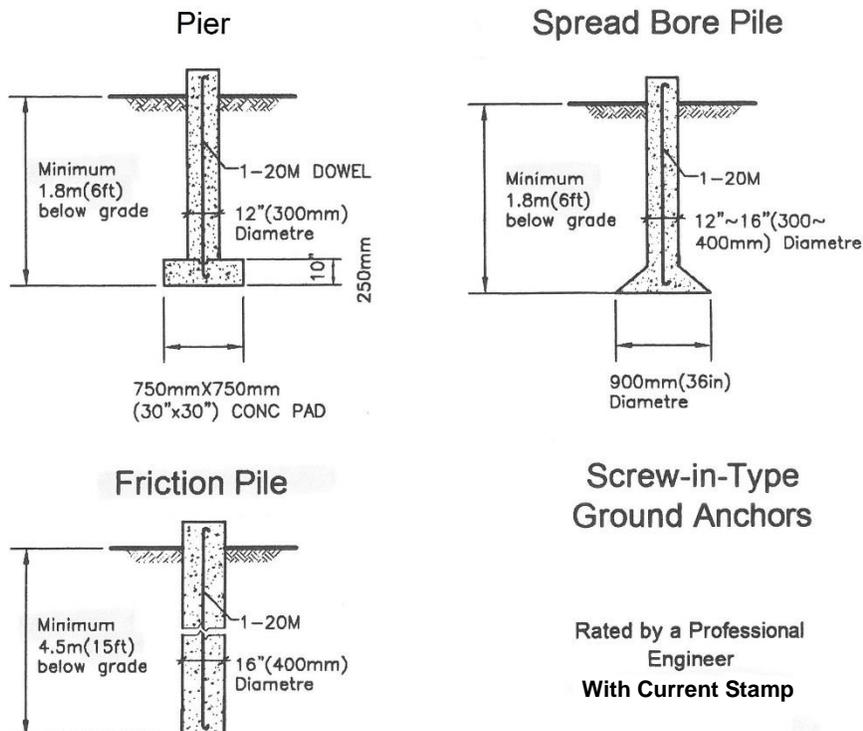
**What are the requirements for a pile, pad+pier, or Ground Anchor foundation?**

Piles or Rated Ground Anchors shall be in accordance with the below figure or, alternatively, be designed by a Professional Engineer. See Figure-4. Piles or Pad+Pier.

The Pad+Pier design must be a minimum of 4'-6" deep to the underside of the pad, however a depth of 6 ft is recommended.

If future plans are to enclose all or a portion of your deck with a screened in area, sunroom, or extension to your dwelling, a below frost foundation is required.

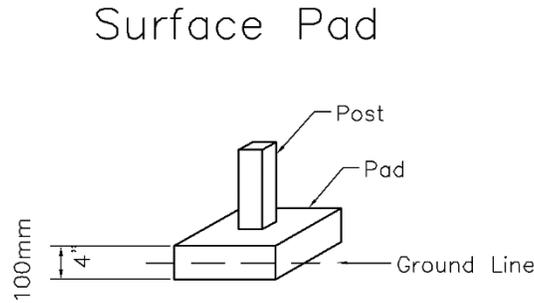
**Figure-4. Piles or Pier**



**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. They should 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 that will be bearing on the pad. Foundation pads are available at most building supply stores. (Sidewalk blocks are not acceptable)

**Figure-5.** Surface Pad



Remove organic overburden  
 Recommend 6" of compacted granular fill beneath pad

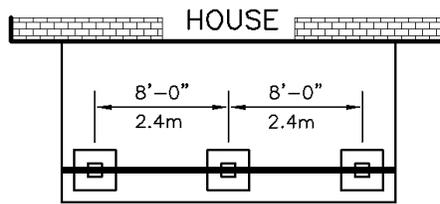
**Table-2.**Recommended Pad size

Maximum Supported Joist Length *	Concrete Surface Pad Size (Length x Width x Thickness)
4 ft. (1.22m)	12in. x 12in. x 4in. (300mm x 300mm x 100mm)
8 ft. (2.44m)	16in. x 16in. x 4in. (450mm x 450mm x 75mm)
10 ft (3.05 m)	18in. x 18in. x 5in. (450mm x 450mm x 150mm)
12 ft. (3.66 m)	24in. x 24in. x 6in. (600mm x 600mm x 150mm)

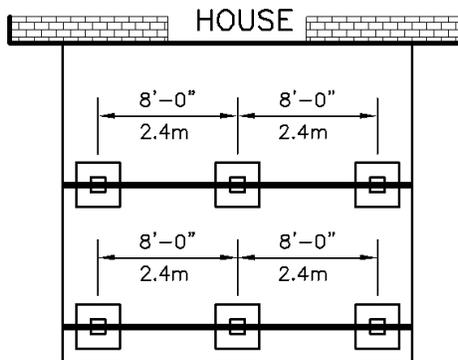
**How far apart can these pads, piles or piers be installed?**

The location of the pads, piles or piers are affected by two other aspects of the construction, namely, 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. The examples that follow are based on the pads, pilings, pad+piers or ground anchors and any supporting posts thereon being installed at a maximum spacing of 8 ft. on centre and the beam tables that follow indicate beams which are adequate for this spacing for certain sizes of floor area.

**Figure-6. Deck Beam Spacing**



**Single Beam Deck**



**Double Beam Deck**

**Can I vary from this 8 ft. spacing?**

Yes, you can place the pads, piles, or piers closer together. And still maintain the beam sizes used in this publication for 8 ft. spacing or, alternatively, if you 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 have been calculated by using basic engineering principles.

Other variations are possible provided the deck is designed and installed to carry a live load of 1.9KPa (40psf). If you wish to increase the spacing of the pads, piling, pad+piers, or ground anchors, or if you wish to reduce the beam tables, you may have to retain someone who is familiar with engineering calculations. Whichever design you choose, it must be indicated on your plans at the time of your building permit application. (An Engineered design may be required)

**Can I use multiples of the 8 ft. 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.

**STRUCTURAL REQUIREMENTS**

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

Posts, if used, should be at least the width of the beam, centered on the pad, piling, pad+piers, or anchor head, and securely fastened to the beam they support by means of toe nailing, wood gussets, angle brackets or other equivalent method. Where posts exceed 2 ft. in length, they should be braced to each other or up to the beam and floor. They should also be anchored to the pad, piling, pad+piers, or anchor head.

**What size of beam do I need?**

The beam table below is intended for single beam decks and multiple beam decks having supports at not exceeding 8ft intervals along the beam.

**Table-3.** Recommended Deck Beam Size

MAXIMUM SUPPORTED JOIST LENGTH	BEAM SIZE
8 ft.	3-2x6 or 2-2x8
10 ft.	4-2x6
12 ft.	3-2x8 or 2-2x10
14 ft.	4-2x8
16 ft.	3-2x10 or 2-2x12

(Design floor live Loads for 40psf)

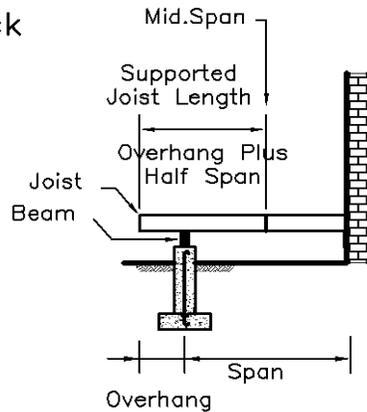
\*\*\* See Page 13\*\*\*

**NOTES :**

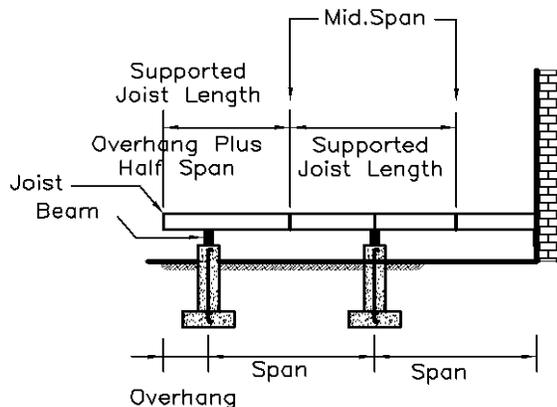
- 1) This table requires beams with supports every 8 ft or less.
- 2) Supported joist length means half the span of joists supported by the beam plus the length of an overhang beyond the beam
- 3) All tables above are for use with Spruce-Pine-Fir lumber grades 1 and 2.

**Figure-7.** Deck Beam Spacing

**Single Beam Deck**



**Multiple Beam Deck**



**How far can I project the beam(s) beyond the end support?**

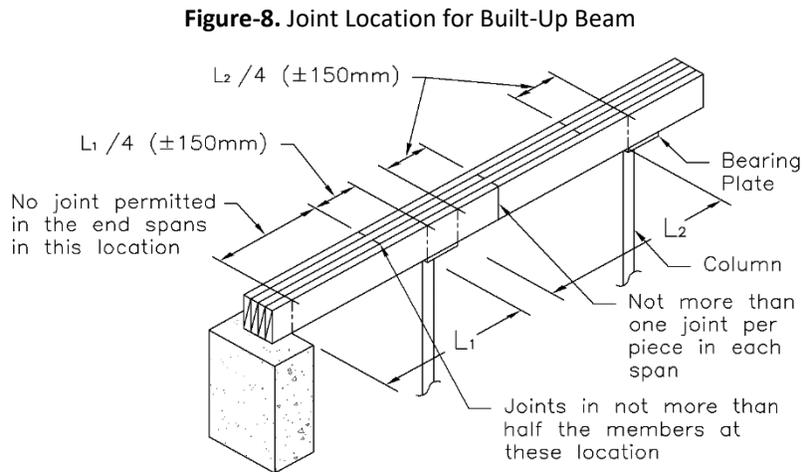
The beam(s) can project a maximum of 24" for 2x10, a maximum of 16" for 2x8, and a maximum of 12" for 2x6 built up ply members.

**Where can I have joints in the beams?**

If joints are necessary, they should be situated on a support (post) or within 6" of ¼ points. On multiple-ply laminated beams the joints should be staggered so the joints occur on alternate supports. If it is intended to project the beam(s) beyond the end supports, there should be no joints within the ¾ span from the end support. See Figure-8

**How should beam laminations be nailed together?**

Individual members are to be nailed together with a double row of nails at least 3 ½ in. in length, spaced not more than 18 in. apart in each row with the end nails located 4 in. to 6 in. from the end of each piece.



**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. The following table (-4) indicates some common species and sized of wood and the acceptable span distances for wood decks. Joist spans are measured from face of support to face of support (in the case of a wood deck from face to beam to face of beam, or from face of beam to face of ledger or hanger). Another item you should take into consideration which selecting the type, size and spacing of your floor 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.

**Table-4. Recommended Joists Span**

Material Type	Joist Size	Joist Centre Span		
		12"	16"	24"
Spruce Pine & Cedar #2 or better	2 x 6	10'-4"	9'-4"	8'-2"
	2 x 8	13'-6"	12'-4"	10'-9"
	2 x 10	17'-3"	15'-8"	13'-9"

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

The projection of 2x6 joists is not to exceed 12 in. Also, 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 16in for 2x8 joists or 24in for 2x10 joists. If in future you are planning to enclose this deck, any projections beyond these limits, engineering analysis may be required to determine if the floor assembly would be sufficient to carry the superimposed roof load.

Joists for “Detached Decks” should not project more than 12”–16” beyond the beam face. Due to non-attachment to a permanent structure, smaller decks could become unstable if people congregated within the projected area.

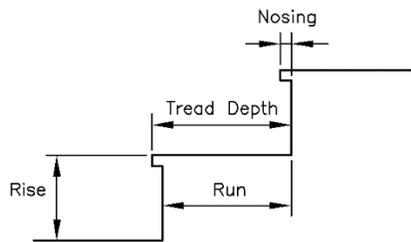
### What kind of decking can I use?

Choose a decking material which can span the joist spacing you have selected without sagging significantly. Composite material manufacture’s specifications must be submitted for review.

### Are there any requirements for stairs?

The Building Code requires stair width to be at least 900mm (35 ½ in.) and that treads and risers have uniform rise and run in any one flight with riser heights not exceeding 7 7/8 in. The Code also requires the minimum run of each step to be 8 ¼ in. and the minimum tread depth to be 9 ¼ in. See Figure-9 for details.

Figure-9. Stair Details



Stair	Min.	Max.
Rise	125mm (5in.)	200mm (7 7/8in.)
Run	230mm (8 1/8 in)	355mm (14in.)
Tread Depth	235mm (9 ¼ in.)	355mm (14in.)

Uniformity and Tolerance: 6mm (1/4in) for treads and risers in one flight.  
If risers are not open, a 25mm (1in) nosing is required at the leading edge of treads and where the stair meets the deck.

### 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.

Hand rails are required to assist person in ascending or descending stairs or ramps. They offer a continuous handhold to support safe passage.

### Will my deck require guardrails?

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

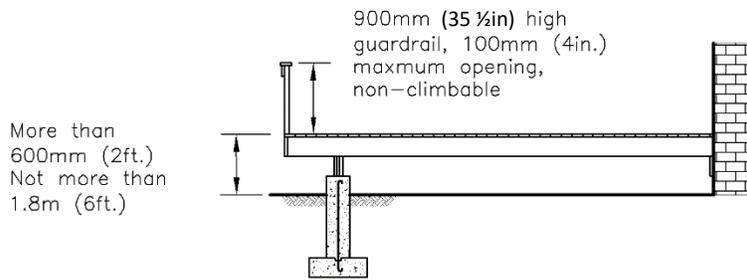
- 1) Decks with floor surfaces that do not exceed 600mm (2ft) above the finished ground level at any point around their perimeter do not require guardrails. However, if guardrails are provided, any opening to the under-side of the top horizontal member must be such as to prevent the passage of a spherical object having a diameter of 100mm (4in.) or

permit the passage of a spherical object having a diameter of 200mm (7 7/8in.). ie: The opening must either be less than 100mm (4in.) or greater than 200mm (7 7/8in.). These requirements must be met unless it can be shown that the location and size of openings which exceed these limits do not represent a hazard;

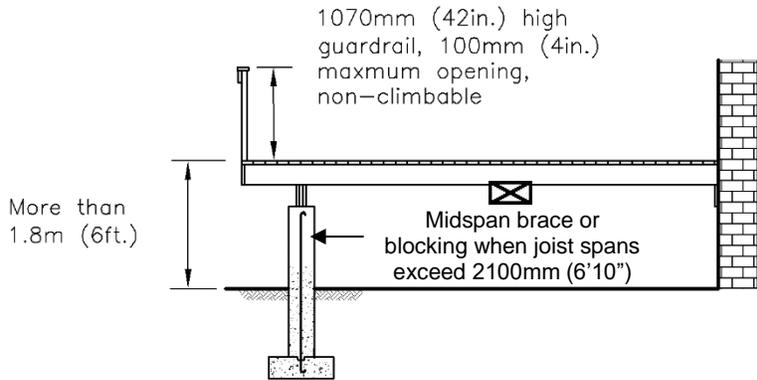
**2) Decks with floor surfaces which are more than 600mm (2ft) but not more than 1.8m (6ft) above the finished ground level at any point around their perimeter require a guardrail at least 900mm (35 1/2in) in height. (See Figure-10) Openings to the underside of the top horizontal member of the guardrail must be such as to prevent the passage of spherical object having a diameter of 100mm (4in). There must also be no member or attachment between 100 mm (4in) and 900 (35 1/2in) measured from the floor surface of the deck which will facilitate climbing;**

**3) Decks with floor surfaces which are more than 6 ft. above finished ground level at any point around their perimeter require a guardrail at least 1070 mm (42in) in height. (See Figure-11)**

**Figure-10. Guardrail Height (0.6m~1.8m)**



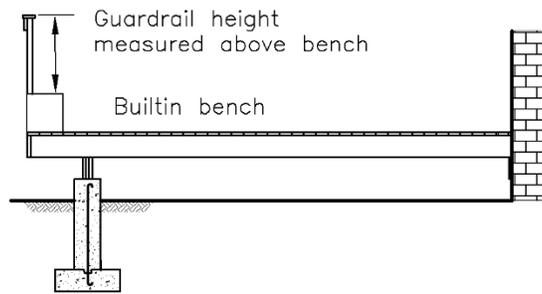
**Figure-11. Guardrail Height (More than 1.8m)**



**Can a built-in bench serve as a guardrail?**

No, unless a guardrail meeting the previously described height opening and non-climbable requirements is provided 35 1/2" above the flat surface of the bench seat. Any openings below the bench seat must also meet the maximum opening requirements.

**Figure-12. 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 allow that option.

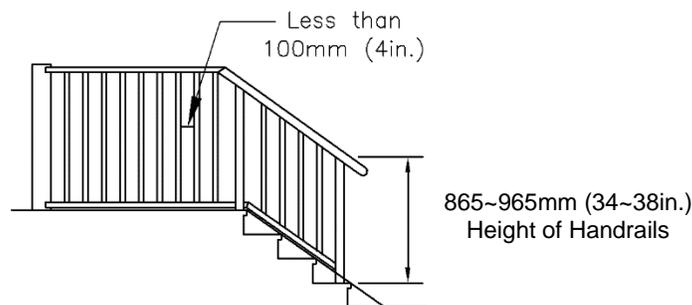
**Are guardrails required for stairs?**

Stairs which have more than three (3) risers and which exceed 600mm (2 ft) above finished ground level also require guardrails. These guards are to be located at least 900mm (35 ½in) 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 least 1070mm (42 in) if the landing is 1.8m (6 ft) above the grade. Opening and non-climbable requirements are the same as previously stated.

**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. The handrail is to be located between 865mm (34in.) and 965mm (38in.) in height measured vertically above a line drawn through the outside edges of the stair nosing. Stairs with 3 risers or less do not require handrails. There must be no member or attachment between 100mm(4in.) and 900mm(35 ½in) measured from the floor surface of the deck which will facilitate climbing. In those cases where a stair also requires a guardrail, a reasonable solution is to provide guardrail which also acts as a handrail, as shown in Figure-13 Combined Guardrail/Handrail.

**Figure-13. Combined Guardrail/Handrail.**



**Who enforces all of these requirements?**

The Building Inspections Division of the South Interlake Planning District Board is assigned the responsibility of monitoring construction for compliance with the various Building Codes and By-laws. This monitoring is carried out by means of the permit approval process and periodic site inspections. The ultimate responsibility for compliance rests with the owner and/or contractor.

**Is there any way that I can avoid having to comply?**

The South Interlake Planning District does not have the authority to waive the requirements of the Building Code, but it does have the authority to accept equivalents which meet the intent of the Building Code. If you feel you can satisfy a Building Code requirement by using an equivalent building material or construction method, contact the Building Inspector.

**The following inspections are required:**

1. Framing – **Before** decking is on
2. Final

To book your inspection, please contact the **SIPD Office at 467-5587** and provide us with your name, contact number, company, homeowner name, property address, proposed date, time and type of inspection.

- It is the responsibility of the Applicant to call for inspections.
- PLEASE GIVE **48 HOURS NOTICE** PRIOR TO INSPECTION.
- Please call and cancel at least 24 hours prior to inspection.
- Work that is not complete at time of inspection or requires re-inspection will be subject to penalty fees.

**Notes**

**\*\*\* From Page 8 Joist Span Continued\*\*\***

MAXIMUM SUPPORTED JOIST LENGTH No. 1 & 2	MAXIMUM SPANS 2X8		
	3-PLY	4-PLY	5-PLY
8	10-7	12-2	13-8
10	9-5	10-11	12-2
12	8-8	10-0	11-2
14	8-0	9-3	10-4
16	7-6	8-8	9-8

MAXIMUM SUPPORTED JOIST LENGTH No. 1 & 2	MAXIMUM SPANS 2X10		
	3-PLY	4-PLY	5-PLY
8	12-11	14-11	16-8
10	11-7	13-4	14-11
12	10-7	12-2	13-7
14	9-9	11-3	12-7
16	9-2	10-7	11-10