RED RIVER
PLANNING DISTRICT
Guiding Development • Building Community

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SAMPLE OF ATTACHED OR DETACHED DECK PLANS

THIS IS A SAMPLE OF WHAT IS REQUIRED FOR ATTACHED OR DETACHED DECK BUILDING PERMIT APPLICATIONS, PLEASE ENSURE TO SUBMIT PLANS THAT ARE APPLICABLE TO YOUR PROPOSED CONSTRUCTION, AS THIS IS FOR REFERENCE ONLY.

Note:

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

Zoning regulations for setbacks vary by Municipality, type of zoning, and type of deck being constructed. To find out more about Zoning setbacks, please contact the RRPD office or visit the website at www.redriverplanning.com.

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

The Municipal Building By-Laws are primarily an administrative document that adopts the Manitoba Building Code and related standards to provide construction requirements.

Every effort has been made to ensure the accuracy of information contained in this publication. However, in the event of a discrepancy between this booklet and the governing By-Law or Building Code, the By-Law or Building Code will take precedence.

ClickBeforeYouDigMB.com

Manitoba Hydro	1-888-624-9376
Shaw	1-866-344-7429
BellMTS	1-800-940-3447

All fees and information are subject to change without notice, and should be verified by the Red River Planning District Office.

General Information

Q. Do I require a building permit for a deck?

Yes! In general, a building permit is required for any deck.

However, you ***do not*** need a permit if the deck is:

- Detached from the principal dwelling, and
- Less than 1.97 feet (600 mm) above the average ground level.

(Note: Measurements are taken from the deck surface to the average ground level).

Q. If the deck is attached to my house, do I still need a building permit?

Yes! If there was no application for a deck included within the original permit for your dwelling structure, a new additional building permit is required. Permit applications are available on our website at www.redriverplanning.com or at our office.

Q. Do I require a building permit for a landing?

No! In general, a building permit is not required for any landing if:

- No larger than 4 ft. x 4 ft.,
- Is located in front of an exterior door,
- Is located at the top of a flight of exterior stairs, and
- Less than 4.27 ft. (1300 mm) from finished grade to the underside of the joist.

Information to include within permit application:

- ❒ Completed Application Form (available on our website)
- ❒ Construction Plans (as shown and detailed within this handout)
- ❒ Site Plan (sample on back explaining what is required)
- ❒ Status of Title (current - dated within 30 days of application)
- ❒ Plan Review Fee

* other approvals may be required (Lot Grade / MIT Approval / Geotechnical Report / etc...)

PERMIT APPLICATION INFORMATION

Required Construction Plans

→ Layout Plans
→ Elevation Plans

Q. What do the layout and elevation plans have to indicate?

The layout plans must show:

- the overall size of the deck, the size and spacing of the beam(s), posts and deck joists;
- the species and grade of the wood being used (i.e. SPF #2 means: species - spruce, grade - #2);
- the type of foundation you have chosen to support the deck,
- the location of any stairs leading to or from the deck and the location of all doors accessing the deck.
- location of any basement windows within the deck area and if the basement windows are for a bedroom.

As an example, see **FIGURE 1**.

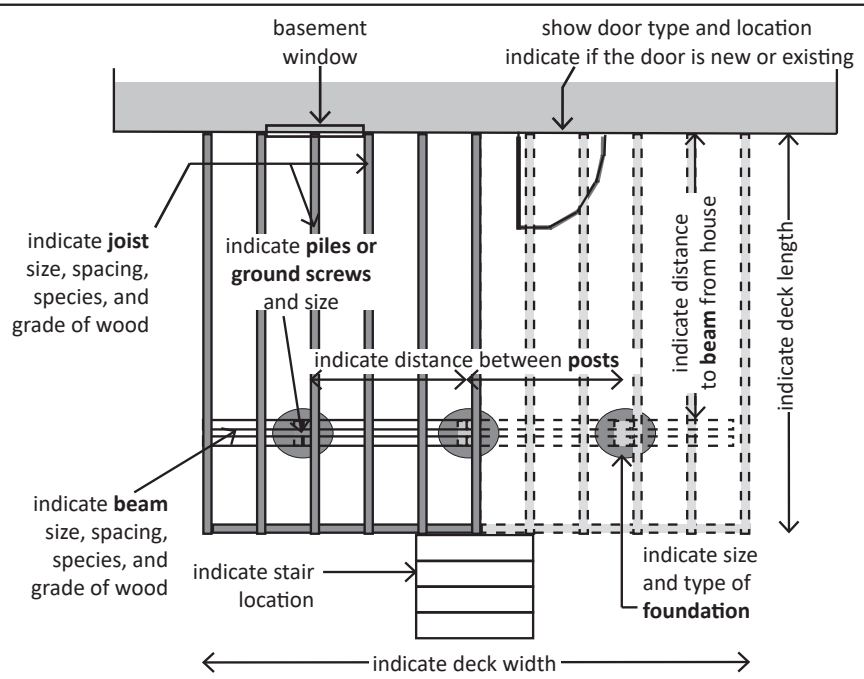


Figure 1: Typical Layout Plan

The elevation plans must show:

- the height of guards and spacing of balusters, height of deck above grade; and
- verify dimensions and specifications from the layout plans.
- Ledger board size, species and grade of wood and fastener type and spacing (wedge anchors, log bolts, structural screws)
- Indicate connection of joists to ledger (hangers)

As an example, see **FIGURE 2**.

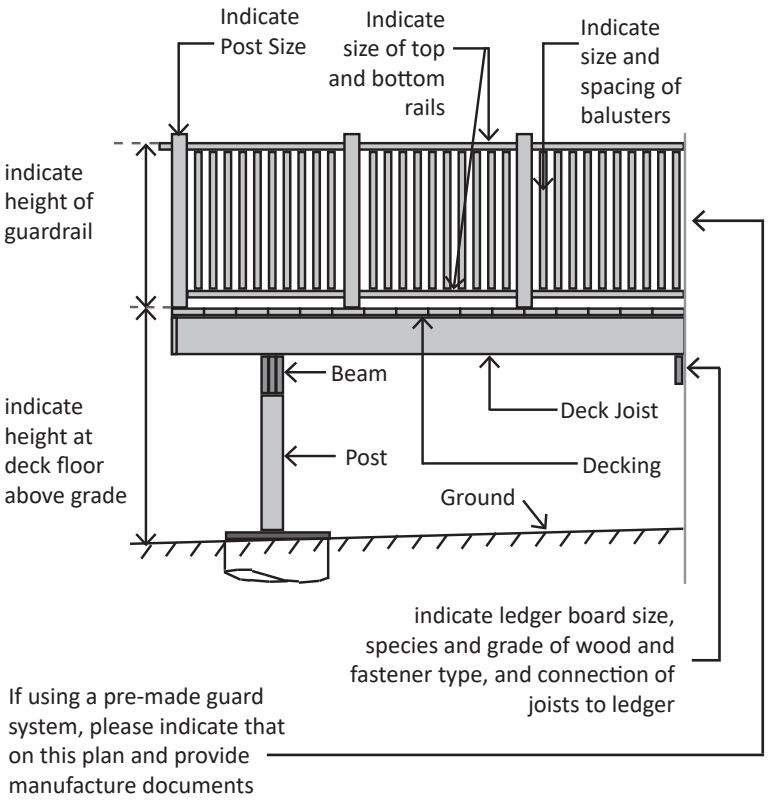


Figure 2: Typical Elevation Plan

FOUNDATION REQUIREMENTS

Foundation Requirements

OPEN DECKS UNDER 1300 mm (4 ft. 3 in.) AND NOT ATTACHED TO THE DWELLING.

Surface Pad Foundations

Surface pads are only permitted when an open deck is:

- not more than one storey;
- not more than 55 m^2 (592 sq. ft.) in area;
- not more than 1300 mm (4 ft. 3 in.) in distance from finished ground to the underside of the joist;
- not supporting a roof; and,
- not attached to another structure, unless it can be demonstrated that differential movement will not adversely affect the performance of that structure; and,
- surface pads are permitted on decks attached to the house with a similar foundation. If the house or cottage has a surface foundation not protected from frost then a deck that is attached may be on surface pads.

As an example, see **FIGURE 3**.

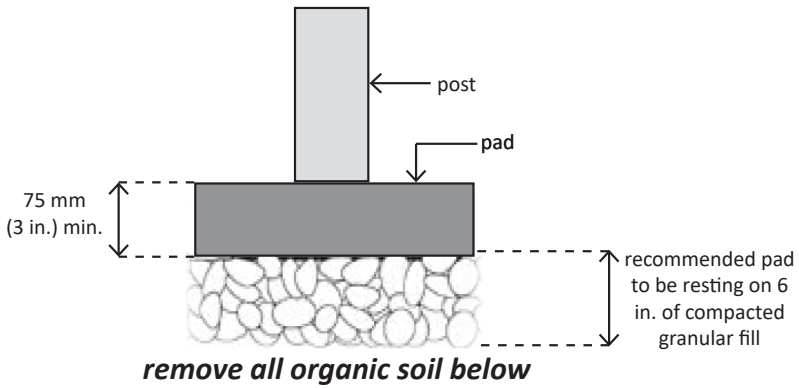


Figure 3: Surface Pad Foundation

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 passageway with a clear height and width under the deck platform of not less than 600 mm (1.97 ft.); or
- by installing the decking in a manner that allows easy removal (eg. screws)

What are the recommendations for a surface pad foundation?

Surface pads of concrete shown in **FIGURE 3** should be a minimum of 75 mm (3 in.) thick. Wood posts and/or wood beams closer than 150 mm (6 in.) 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.

Refer to the following table to determine the recommended side of the surface pad foundation. These pad sizes are based on existing industry standards and are generally available at most lumber or home supply dealers.

Recommended Deck Foundation Pad Sizes[1]

Maximum Supported Joist Length[2]	Concrete Surface Pad Size[3] (length x width x thickness)
1.22 m (4 ft.)	300 mm x 300 mm x 100 mm (12 in. x 12 in. x 4 in.)
2.45 m (8 ft.)	450 mm x 450 mm x 75 mm (18 in. x 18 in. x 3 in.)
3.65 m (12 ft.)	600 mm x 600 mm x 150 mm (24 in. x 24 in. 6 in.)

Notes:

[1] This table requires beams that are supported every 2.44 m (8 ft.) 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.

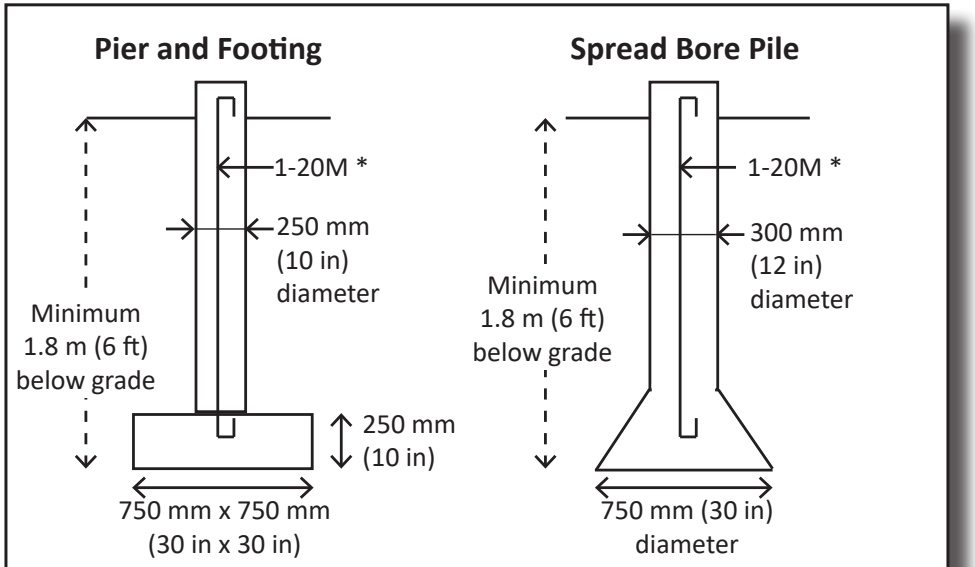
[3] Pad sizes are based on industry standards

FOUNDATION REQUIREMENTS

OPEN DECKS OVER 1300 MM (4 FT. 3 IN.) IN HEIGHT OR ATTACHED TO A STRUCTURE.

Pile or Pier Foundations

When the underside of the deck joists are more than 1300 mm (4 ft. 3 in.) above the ground, the foundation depth must be at least the depth of frost penetration: 1.8 m (6 ft.). A pier or pile type foundation, as shown in **FIGURE 4**, or alternatively a foundation designed by a Professional Engineer is required.



** refers to one 20 mm (#6) diameter reinforcing bar*

Figure 4: Piles or Piers

What other options are available?

A foundation using "ground screws" may be permitted providing the anchor extends to below the depth of frost penetration and has been approved by an engineer. You may need to retain someone to do load calculations to determine that the loads transferred to the foundation do not exceed the loads for the approved screws. If your future plans are to enclose the deck with a sunroom, screened patio, or other similar structure. It is recommended that you take this into consideration when sizing and designing the foundation, beam and joist location.

STRUCTURAL REQUIREMENTS

Structural Requirements

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

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 400 mm (16 in.) where 2x8 joists are used, and 600 mm (2 ft.) where 2x10 or larger joists are used.

The projection of 2x4 or 2x6 joists would require engineering analysis to determine if the floor assembly would be sufficient to carry the superimposed roof loads. See **FIGURE 6**: Projection.

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.

What size of deck joists do I require?

The size of the joists are governed by the distance they have to span and the spacing at which the joists are installed. The table shown below indicates sizes of wood and the acceptable span distances for wood decks. Joist spans are measured from face of support (i.e.: beam/ledger) to face of support.

DECK JOIST SPANS
(DESIGN LIVE LOADS FOR 1.9 KPA (40 PSF))

COMMERCIAL DESIGNATION	JOIST SIZE	MAXIMUM SPAN JOIST SPACING		
		12 in	16 in	24 in
Spruce / Pine / Fir No. 1 or No. 2	2" x 6"	9'-7"	8'-10 3/4"	8'-2"
	2" x 8"	11'-7 3/8"	11'-0 1/4"	10'-6"
	2" x 10"	13'-8 1/8"	12'-11 7/8"	12'-4 3/8"
	2" x 12"	15'-7"	14'-10"	14'-1 1/4"

*For guideline purposes only, The values given above are taken from the CWC span book for SPF grade 1 and 2 only. Any other lumber like PWF or cedar lumber may differ.

Do the deck members need to be pressure treated?

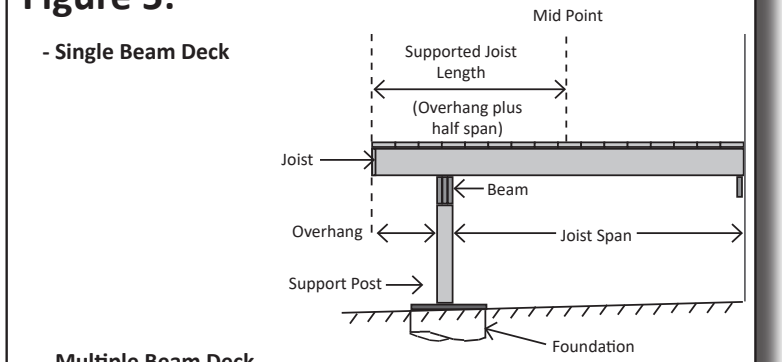
When the vertical clearances between the wood elements and the finished ground level is less than 150 mm (6") or when the wood elements are not protected from exposure to precipitation, they must be pressure treated with a preservative to resist decay.

What size of beams do I need?

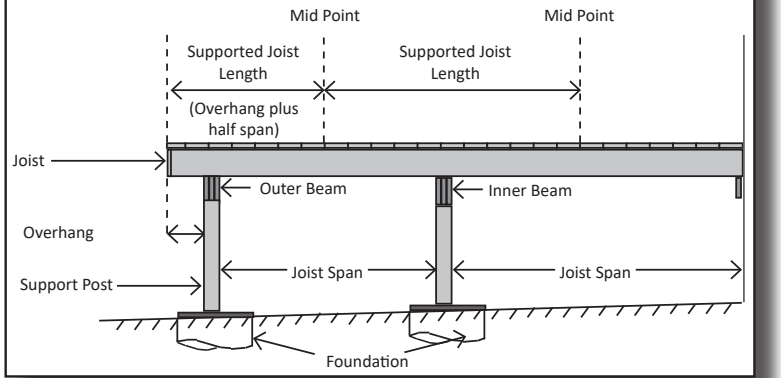
The beam table (as shown below) is intended to assist with the measurements of intervals along the beam. See also **FIGURE 5**.

Figure 5:

- **Single Beam Deck**



- **Multiple Beam Deck**



STRUCTURAL REQUIREMENTS

Beam Spans (Appendix 9.23.4.2. CWC Tables)

(Spans taken between supporting posts)

2 x 6

Supported Joist Length (ft.)	2 ply	3 ply	4 ply	5 ply
4	8’-0”	9’-2”	10’-1”	10’-10”
6	6’-10”	8’-0”	8’-10”	9’-6”
8	5’-11”	7’-3”	8’-0”	8’-7”
10	5’-3”	6’-6”	7’-5”	8’-0”
12	4’-10”	5’-11”	6’-10”	7’-6”
14	4’-5”	5’-5”	6’-4”	7’-1”
16	4’-2”	5’-1”	5’-11”	6’-7”
18	3’-11”	4’-10”	5’-7”	6’-3”

Beam Spans (Appendix 9.23.4.2. CWC Tables)

(Spans taken between supporting posts)

2 x 10

Supported Joist Length (ft.)	2 ply	3 ply	4 ply	5 ply
4	12’-6”	15’-4”	16’-11”	18’-1”
6	10’-2”	12’-6”	14’-5”	15’-11”
8	8’-9”	10’-9”	12’-5”	13’-11”
10	7’-10”	9’-8”	11’-2”	12’-5”
12	7’-2”	8’-9”	10’-2”	11’-4”
14	6’-8”	8’-2”	9’-5”	10’-6”
16	6’-2”	7’-7”	8’-9”	9’-10”
18	5’-10”	7’-2”	8’-3”	9’-3”

Beam Spans (Appendix 9.23.4.2. CWC Tables)

(Spans taken between supporting posts)

2 x 8

Supported Joist Length (ft.)	2 ply	3 ply	4 ply	5 ply
4	10’-3”	12’-1”	13’-3”	14’-3”
6	8’-4”	10’-3”	11’-7”	12’-6”
8	7’-2”	8’-10”	10’-2”	11’-3”
10	6’-5”	7’-10”	9’-1”	10’-2”
12	5’-10”	7’-2”	8’-4”	9’-3”
14	5’-5”	6’-8”	7’-8”	8’-7”
16	5’-1”	6’-3”	7’-2”	8’-0”
18	4’-9”	5’-10”	6’-9”	7’-7”

Beam Spans (Appendix 9.23.4.2. CWC Tables)

(Spans taken between supporting posts)

2 x 12

Supported Joist Length (ft.)	2 ply	3 ply	4 ply	5 ply
4	14’-6”	17’-9”	19’-10”	21’-0”
6	11’-10”	14’-6”	16’-9”	18’-8”
8	10’-2”	12’-6”	14’-5”	16’-2”
10	9’-1”	11’-2”	12’-11”	14’-5”
12	8’-4”	10’-2”	11’-9”	13’-2”
14	7’-8”	9’-5”	10’-11”	12’-2”
16	7’-2”	8’-10”	10’-2”	11’-5”
18	6’-9”	8’-4”	9’-7”	10’-9”

*For guideline purposes only, The values given above are taken from the updated CWC span book sept 2021 for SPF grade 1 and 2 only. Any other lumber like PWF or cedar may differ.

STRUCTURAL REQUIREMENTS

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 1.5 m (5 ft.) in height should be 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.

Can I have joints in the beam?

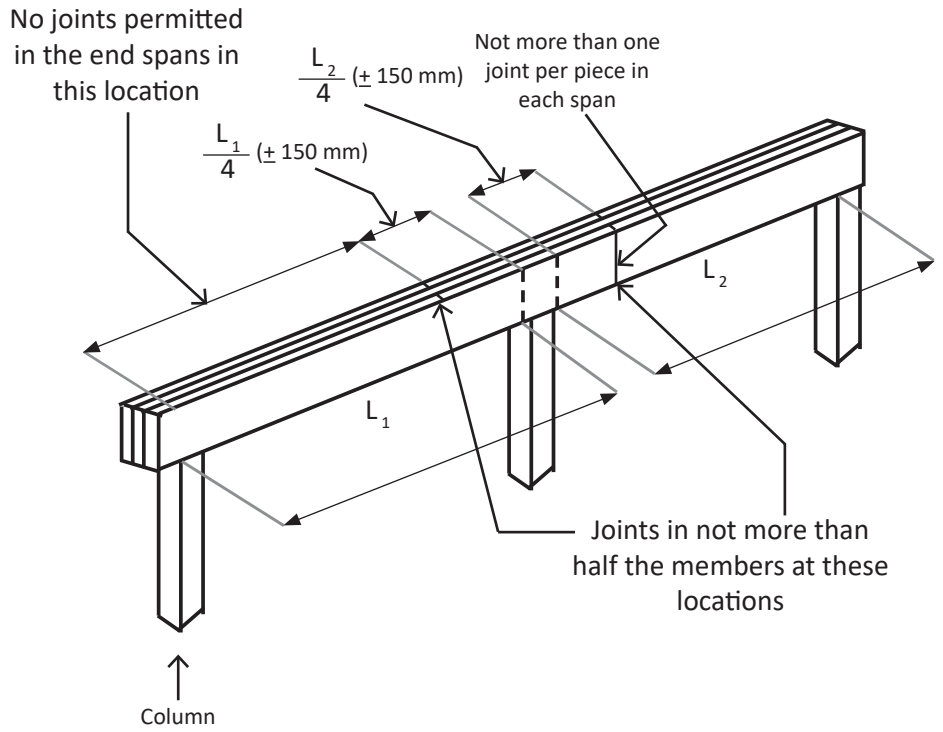
Yes. However, joints are ONLY permitted on multi-span beams. When joints are necessary, they should be situated on a support post. On multiple-ply laminated beams the joints should be staggered so that joints occur on alternate supports. If it is intended to project the beam beyond the end supports,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

Where a beam is continuous over more than one span, individual members are permitted to be butted together to form a joint at or within 150 mm of the end quarter points of the clear spans, provided the quarter points are not those closest to the end of the beam.

Members joined at quarter points shall be continuous over adjacent supports.

Joints in individual members of a beam that are located at or near the end quart points shall not occur in adjacent members at the same quart point and shall not reduce the effective beam width by more than half. Not more than one butt joint shall occur in any individual member of a built-up beam within any one span.
See **FIGURE 6**: Joint Location in Built-Up Beams.

Figure 6:
Joint Location in Built-Up Beams

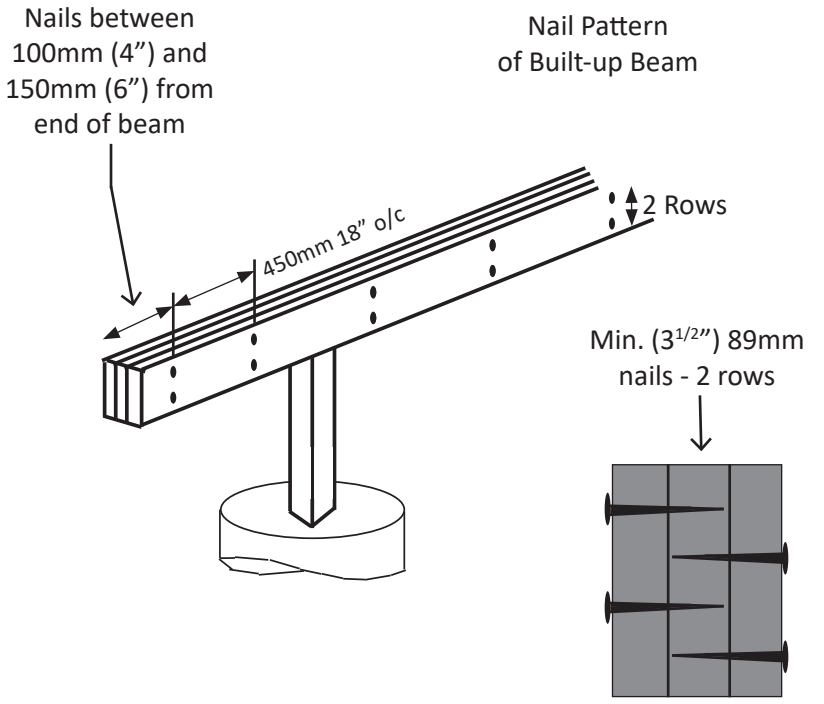


STRUCTURAL REQUIREMENTS

How should beam laminations be nailed together?

Individual members must be nailed together with a double row of nails (not screws) at least 89 mm ($3^1/_2$ in.) in length, spaced not more than 450 mm (18 in.) apart in each row with the end nails located between 100 mm (4 in.) and 150 mm (6 in.) from the end of each piece. See **FIGURE 6a**: Laminations.

Figure 6a: Laminations



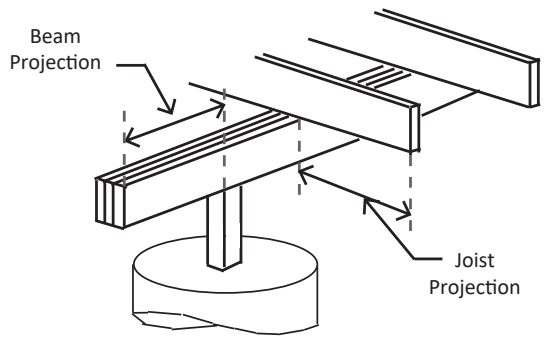
Each poly should be nailed to the centre ply as shown (3 ply)

All structural connections, multiple joists, beams, post to beam, joists beams, etc... must be made with nails or structural screws and not regular deck screws. When hangers are used, ensure to follow manufacturers details using approved hanger nails or specific hanger screws with minimum length. Typically hangers are not to be drilled, cut, bent or altered unless specified by the manufacturer.

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

The beam can project up to a maximum of 600 mm (2 ft.) beyond the end support. See **FIGURE 6b**: Projection.

Figure 6b: Projection



DESIGN REQUIREMENTS

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 required to assist persons in ascending or descending stairs. They offer a continuous handhold to support persons who may be using the stairs.

Guards are only required on decks that are more than 600 mm (2 ft.) above finished grade level measured from the finished deck surface.

Guards to have openings not greater than 4 inches and any triangle opening below guard to stairs not be greater than 6 inches, to prevent children from accidentally getting their heads stuck in the guard.

It is recommended that for decks less than 2 ft. above grade that you follow the same requirements for required guards.

Are guardrails required for stairs?

Guards are required on stairs where there is a difference in elevation of more than 600 mm (2 ft.) to finished ground level. The height of guards for flights of steps shall be 900 mm (3 ft.) 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 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 stairs.

The handrail is to be located between 800 mm (32”) and 1070 mm (42”) 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.

See **FIGURE 7**.

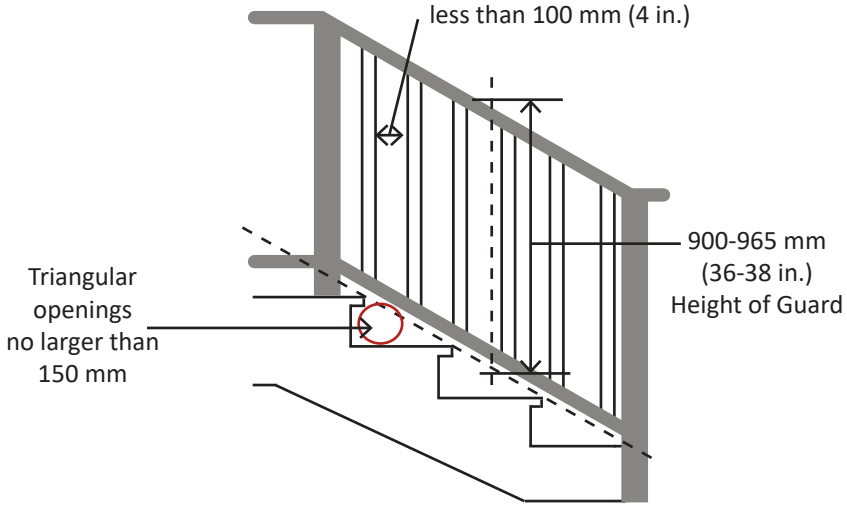


Figure 7: Handrails and Guardrails on Stairs

DESIGN REQUIREMENTS

Will my deck require guardrails?

Guards are only required on decks that are more than 600 mm (2 ft.) above finished ground level.

See **FIGURES 8 & 9**

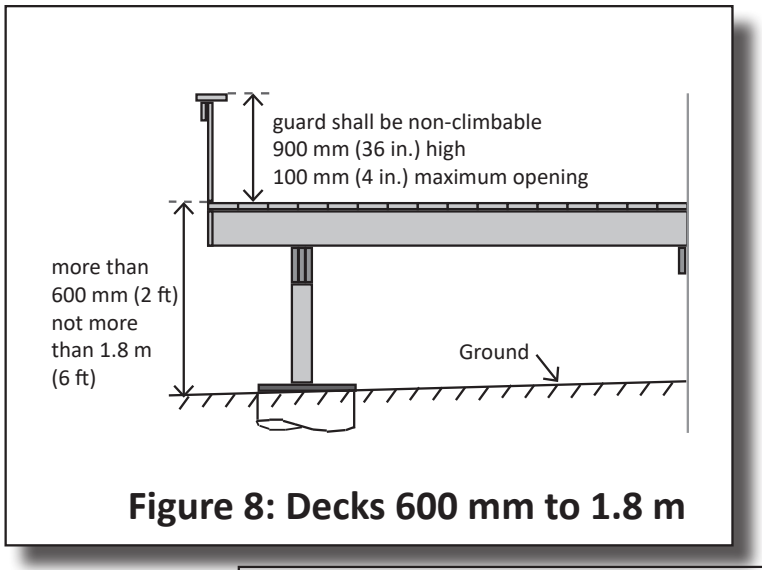


Figure 8: Decks 600 mm to 1.8 m

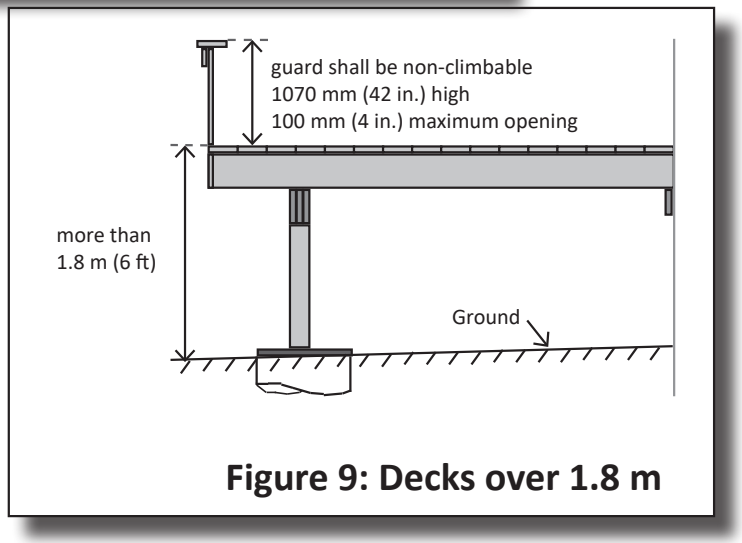


Figure 9: Decks over 1.8 m

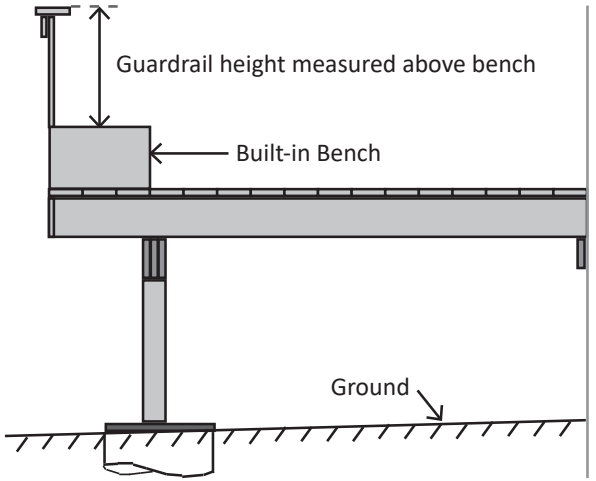
If a ledger is to be used the size and type of the ledger will need to be provided, along with the type of fastener, and spacing.

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 10**: Guardrail and Bench.

Figure 10: Guardrail and Bench



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

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

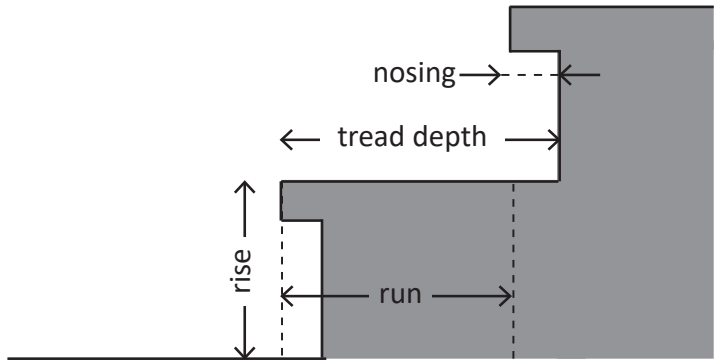
DESIGN REQUIREMENTS

Are there any requirements for stairs?

The Building Code requires stair width to be at least 900 mm (36 in.) and that treads and risers have uniform rise and run in any one flight with riser heights not exceeding 200 mm (8 in.) and not less than 127 mm (5 in.). The Building Code also requires the minimum run of each tread to be 255 mm (10.03 in.) / maximum to be no more than 355 mm (14 in) and the minimum tread depth to be 235 mm (9.25 in.) and the maximum to be no more than 355 mm (14 in.) The depth of a rectangular tread shall not be less than its run and not more than its run plus 25 mm. (1 in.)

See **FIGURE 11** for details.

Figure 11: Stairs



How do I calculate the loads on my foundation?

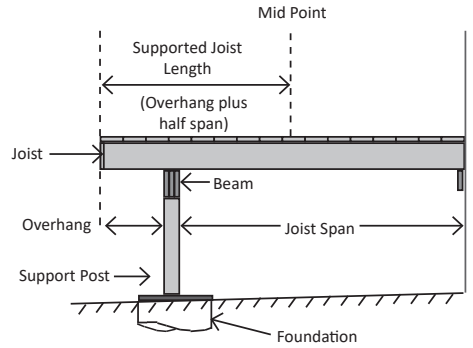
The loads can be calculated using the formula below and **FIGURE 5**.

Load = (Supported Joist Length) X (Support Beam Length) X 50 lbs. per sq. ft. (total floor load) = total load (in pounds)

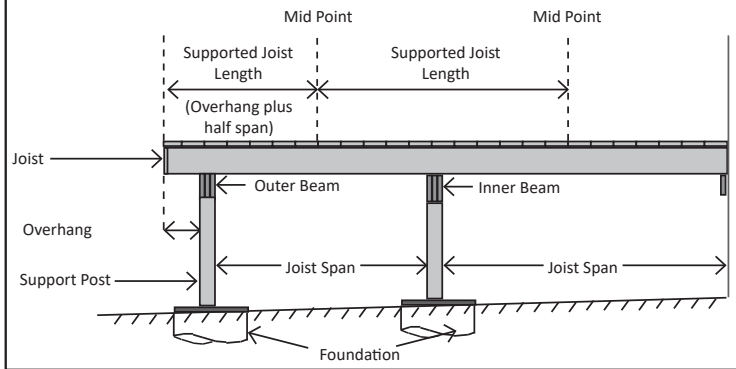
Supported Joist Length - **FIGURE 5**

Figure 5:

- Single Beam Deck

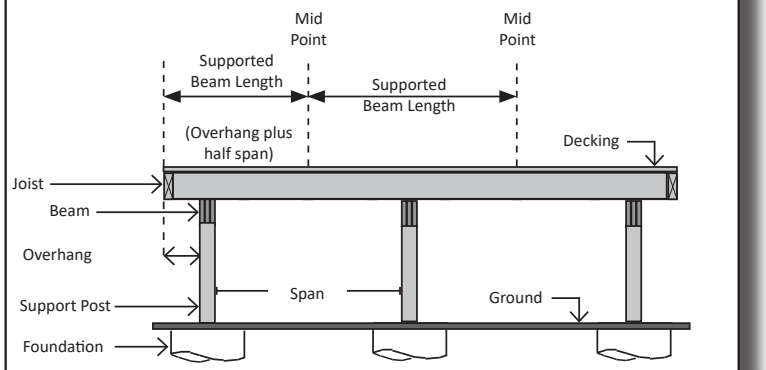


- Multiple Beam Deck



Supported Beam Length means half the span of the beam supported by the column plus the length of the overhang beyond the column. (See **FIGURE 12**)

Figure 12: Supported Beam Length



RAMP DESIGN REQUIREMENTS

A ramp with a 1 in 12 slope means that for each one-inch rise of the ramp, one foot of ramp length is required. Therefore a ramp with a rise of 300 mm (12”) would have
to be 3.65 m (12’-0”) long.

The surface of the ramp must have a finish that is slip resistant.

A ramp must have a level area not less than 1.7 m x 1.7 m (5’-7” X 5’-7”) at the top and bottom and have a level area not less than 1350 mm long and at least the width of ramp, at intervals not more than 9 m (29’-6”) along its length and where there is a change in direction of 90º or less.

A ramp with a change in direction greater than 90º must have a level area of 1350 mm (4’-5”) and be at least the width of the ramp.

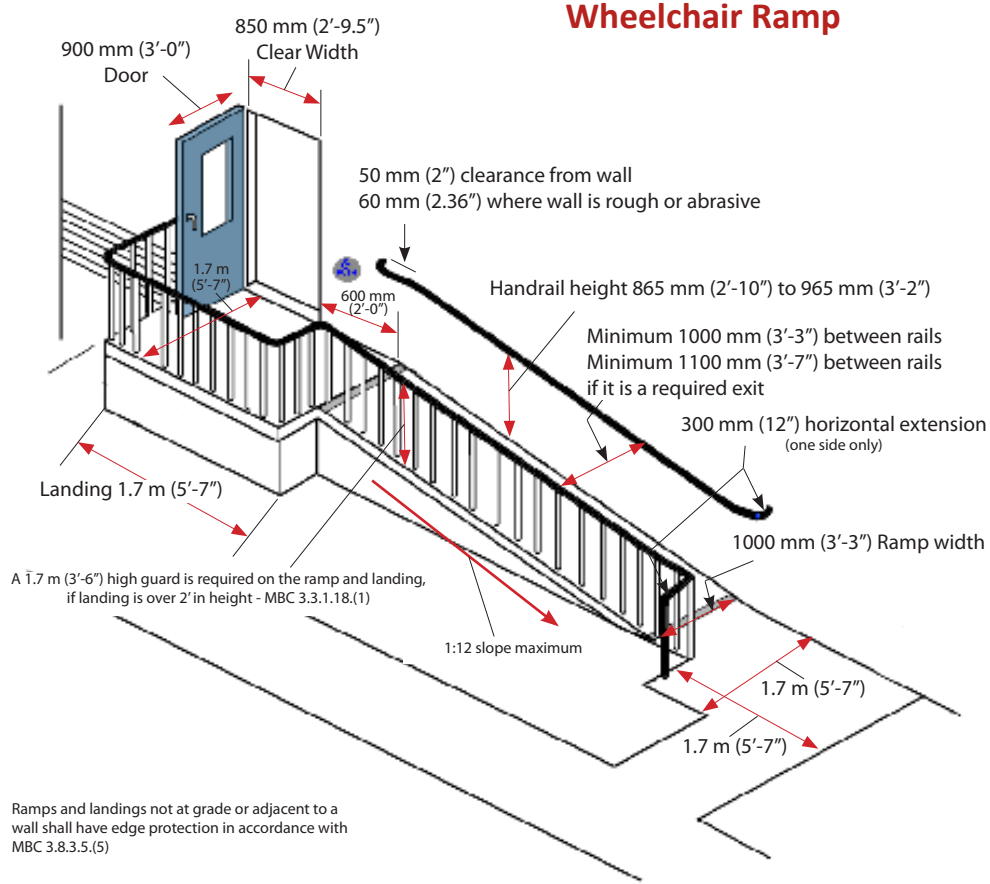
Where the change in elevation is greater than 225 mm (9”), landings must have detectable warning surfaces at the top and bottom that include changes in color, texture, resiliency and sound from surrounding surfaces.

Handrails are required on both sides of ramp and, except where interrupted by doorways, be continuous throughout length of ramp, including landings.

Ramps not supported directly on the ground shall have all structural elements designed by a professional engineer licensed to practice in the province of Manitoba.

A building permit is required for the construction of a wheelchair ramp.

Accessible Entrance Showing Minimum Dimensions for a Wheelchair Ramp



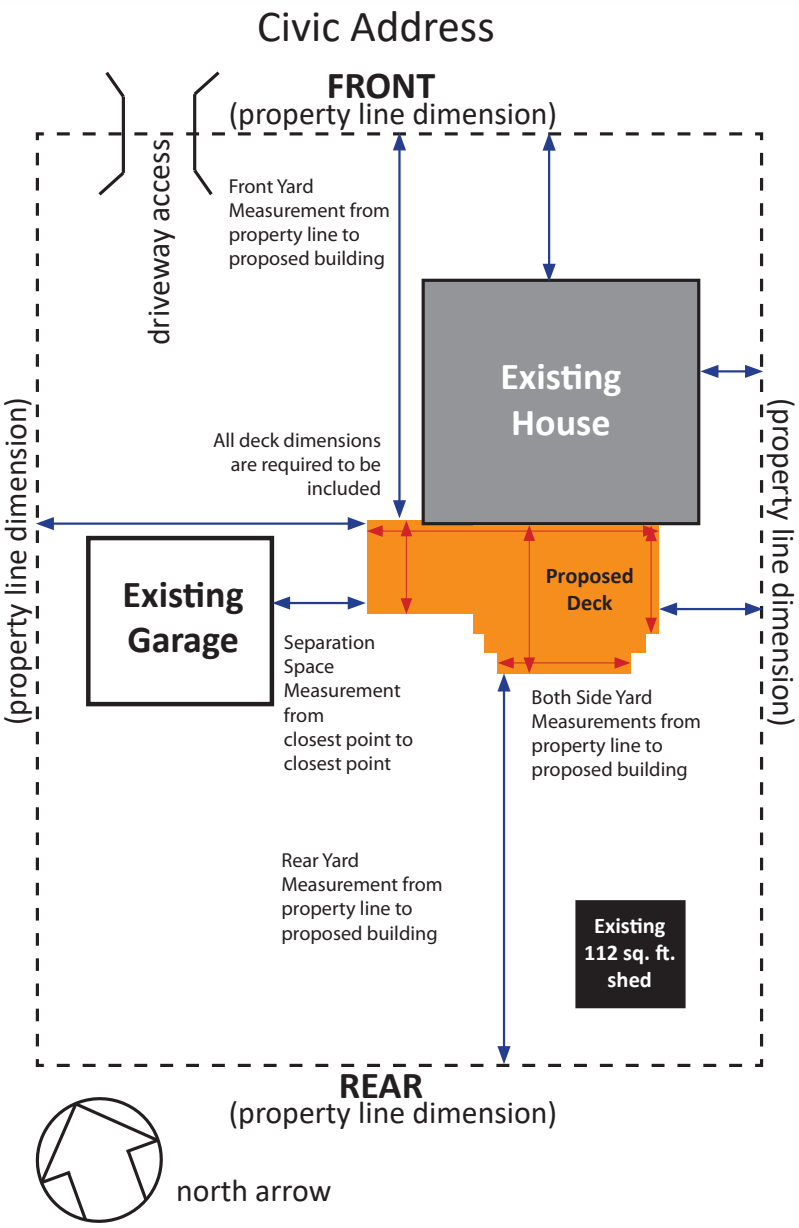
Wheelchair Ramps for a Dwelling Unit

Guard height of 900 mm (3’-0”) is permitted where the difference in elevation
between the landing/ramp and the ground is less than 1.8 m (6’-0”)

Handrail height shall be between 865 mm (2’-10”) and 965 mm (3’-2”)

Horizontal extension of handrail is not required.

NOTES



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 Municipal or Building By-law and the Manitoba Building Code, the governing By-law or the Manitoba Building Code will take precedence.
Date revised: JUNE 1, 2025

Typical Site Plan