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Deck Guide

Deck Design and Construction Requirements

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List of sample drawings

About this guide

This guide provides basic information about residential deck construction, including common deck components and building permit requirements.

It applies only to platform-style wood decks that do not support another floor or a roof structure.

This guide is intended to help you plan and build a deck that complies with the Ontario Building Code (OBC), the Township's Zoning By-law, and other applicable by-laws.

Please note that this is a general construction guide only and does not include all Ontario Building Code requirements. All permit applications are still subject to a detailed plans review process, and all construction must be inspected on site by a Township Building Inspector after a permit has been issued.

Homeowners may design and build their own deck. However, the Township recommends working with a qualified designer and contractor, where appropriate, to help ensure the project is safe, OBC-compliant, and completed properly.

Deck construction checklist

This checklist-style guide outlines typical deck components, highlights key design considerations, and helps you find related examples throughout this document.

Deck Component	Check Box	Notes
Footings – Concrete Piers ('sonotube' footings)	☐	The base must be 'belled out' and located at a minimum of 1.2m (4ft) below grade. Piers must extend a minimum of 150mm (6") above grade. Refer to the Design Guide for sizing, spacing and other design considerations.
Footings – Helical Piles	☐	Must be designed and installed by a qualified individual using an approved product. A torque verification report must be provided to the Township upon completion of the footing installation.
Footings – Deck Blocks	☐	The underside of the deck joists must not be more than 600mm (2ft) above grade, must not support a roof load, support more than one storey, and must not be attached to the house or any other structure. Refer to the Sample Drawings included in this guide.
Posts	☐	Must be minimum 6ftx6ft pressure-treated wood.
Beams	☐	The minimum size for a built-up wood beam is a 3-ply 2ftx8ft. 2-ply Beams are not permitted. Refer to the Design Guide for sizing.

Deck Component	Check Box	Notes
Floor joists	☐	Refer to the Design Guide for sizing, spacing, and span limitations.
Ledger Board	☐	Must be attached to the building and fastened into adequate structural support (e.g. into house structural framing). Must not be attached to brick, siding, or other non-structural cladding. Refer to the Design Guide for sizing and spacing.
Wood Decking	☐	Refer to the Design Guide for minimum dimensions.
Composite Decking	☐	Refer to Sample Drawings and General Information for design limitations.
Guard rails	☐	Refer to SB-7 example details included in this guide.
Handrails	☐	A handrail is required on exterior deck stairs which has more than 3-risers. Handrails must have a minimum height of 34”. Refer to SB-7 example details and Sample Drawings included in this guide.
Stairs	☐	Stairs must have a rise of 4 7/8” (min.) and 7 7/8” (max.) and the rise must be consistent across the flight. A minimum run length of 10” is required. Refer to the Design Guide and Sample Drawings.

Design Guide

Sizing and span tables

Table 1. Minimum base diameter for pier footing

Supported joist length	Pier spacing			
	6’	**8’**	**10’**	**12’**
3’	10”	10”	10”	10”
4’	10”	10”	10”	10”
5’	10”	10”	10”	11”
6’	10”	10”	11”	12”
7’	10”	10”	11”	12”
8’	10”	10”	12”	13”

Notes:

1) The minimum concrete pier diameter permitted is 10”
2) Pier footings must be belled out at the bottom (refer to sample drawings included in this document)

Table 2. Maximum joist span (S-P-F No. 1 and No. 2 Lumber)

Joist size	With strapping			With strapping and bridging		
	12” O.C.	**16” O.C.**	**24” O.C.**	**12” O.C.**	**16” O.C.**	**24” O.C.**
2 x 6	9 ‘– 6”	8’ – 10”	8’ – 2”	10’ – 3”	9’ – 4”	8’ - 2”
2 x 8	11’ – 6”	11’	10’ – 6”	13’ – 1”	12’ – 2”	10’ – 8”
2 x 10	13’ – 8”	12’ – 11”	12’ – 4”	15’ – 1”	14’	13’ – 1”
2 x 12	15’ – 7”	14’ – 9”	14’ – 1”	16’ – 11”	15’ – 9”	14’ – 8”

Notes to maximum joist span table:

1) Floor joists require a minimum end bearing length of 38mm (1.5″)
2) The maximum permitted floor joist cantilever is 16″ for 2x8 lumber and 24″ for lumber sizes of 2x10 or more.
3) Solid blocking is required at the midspan but shall not be spaced more than 2 100mm (6′-10″) from each support or other rows of blocking.

Table 3. Maximum beam span (S-P-F No. 1 and No. 2 Lumber)

Supported joist length[1]	Size of built-up beam[2]					
	3 – 2 x 8	**4 – 2 x 8**	**3 – 2 x 10**	**4 – 2 x 10**	**3 – 2 x 12**	**4 – 2 x 12**
7′ – 10″	10′	11′ – 1″	12′ – 10″	14′ – 2″	14′ – 11″	17′ – 2″
9′ – 10″	9′ – 4″	10′ – 3″	11′ – 6″	13′ – 1″	13′ – 5″	15′ – 5″
11′ – 9″	8′ – 7″	9′ – 8″	10′ – 6″	12′ – 2″	12′ – 2″	14′ – 1″
13′ – 9″	8′	9′ – 2″	9′ – 9″	11′ – 3″	11′ – 4″	13′ – 1″
15′ – 9″	7′ – 5″	8′ – 7″	9′ – 1″	10′ – 6″	10′ – 7″	12′ – 2″
17′ – 8″	7′	8′ – 1″	8′ – 7″	9′ – 11″	10′	11′ – 6″
19′ – 8″	6′ – 8″	7′ – 8″	8′ – 2″	9′ – 5″	9′ – 5″	10′ – 11″

Notes to maximum beam span table:

1) Supported joist length means half the sum of the joist spans on both sides of the beam.
2) Beams require a minimum end bearing of 76mm (3″) or 114mm (4.5″) where the supported length exceeds 4.2m (13′-9″)

Table 4. Ledger board lag bolt spacing

Lag bolt size	Joist span			
	6' – "0	**8' – 0"**	**10' – 0"**	**12' – 0"**
1/2" (12.7mm)	32" O.C.	16" O.C.	16" O.C.	12" O.C.
Equivalent 16" O.C. joist spacing	Every other joist space	Every joist space	Every joist space	Every joist space with 2 every other space
3/8" (9.5MM)	24" O.C	12" O.C.	12" O.C.	8" O.C.
Equivalent 16" O.C. joist spacing	2 every third joist space	Every joist space with 2 every other space	Every joist space with 2 every other space	Every joist space with 3 every other space

Table 5. Stair dimensions

Stair dimensions (OBC Articles 9.8.4.1. and 9.8.4.2.)		
Type	**Min.**	**Max.**
Rise(1)	125mm (4 7/8")	200mm (7 7/8")
Run	255mm (10")	355mm (14")
Tread	Run	Run + 25mm (1")

Notes:

1) Stair risers must be of uniform height in any one flight, with a maximum tolerance of:
    a. 5mm between adjacent treads, and
    b. 10mm between the deepest and shallowest treads in a flight.

Table 6. Minimum size of floor elements

Floor element	Minimum size
Lumber decking	25mm x 140mm (5/4” x 6”)
	38mm x 89mm (2” x 4”)
Lumber floor joists	38mm x 184mm (2” x 8”)

Table 7. Guards - Minimum size of load bearing elements

Guard element	Min. Size, mm (in.)
Post	89mm x 89mm (4 x 4)
Top rail	38mm x 89mm (2 x 4)
Bottom rail	38mm x 89mm (2 x 4)
Pickets	32mm x 32mm

Sample drawings

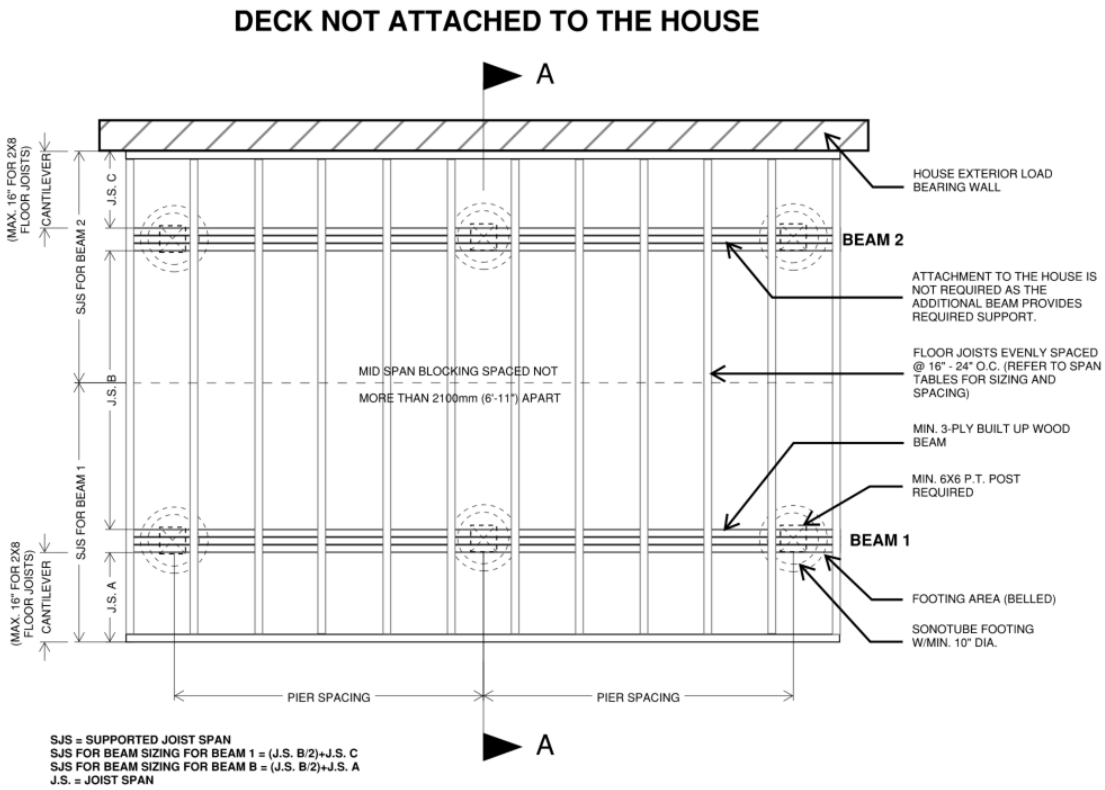

Figure 1. Deck not attached to the house plan

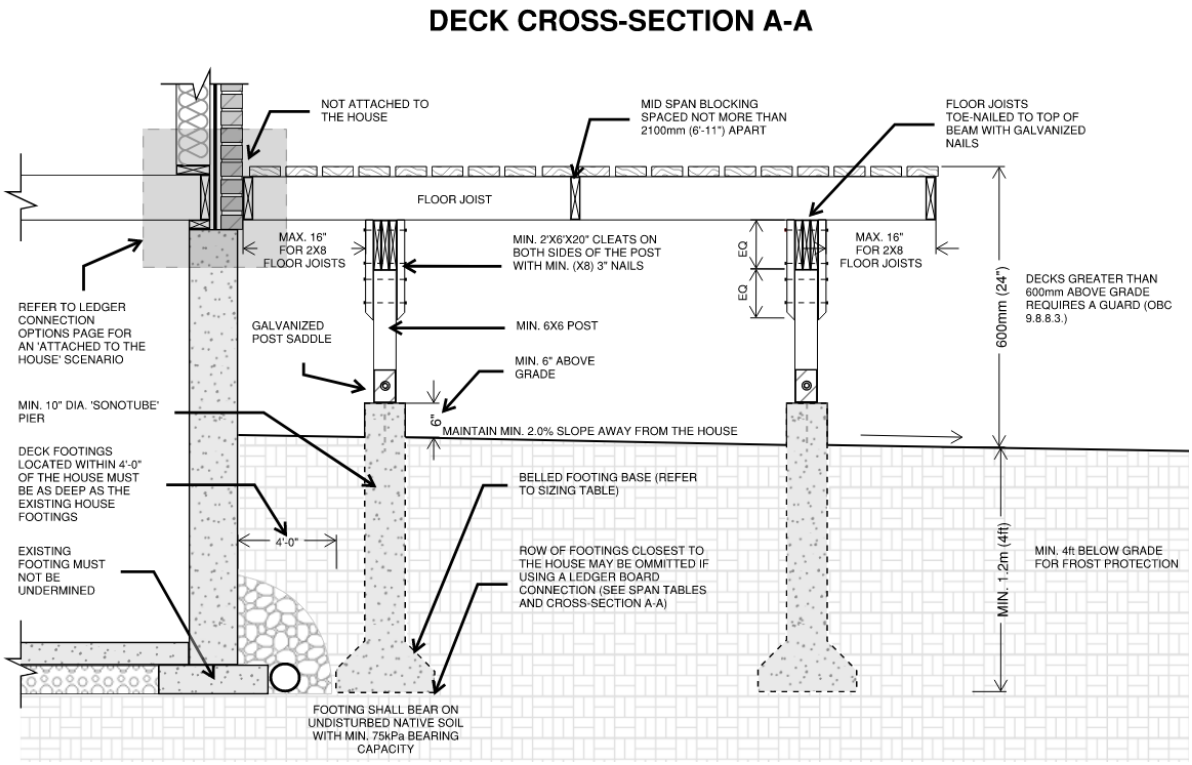

Figure 2. Deck cross section

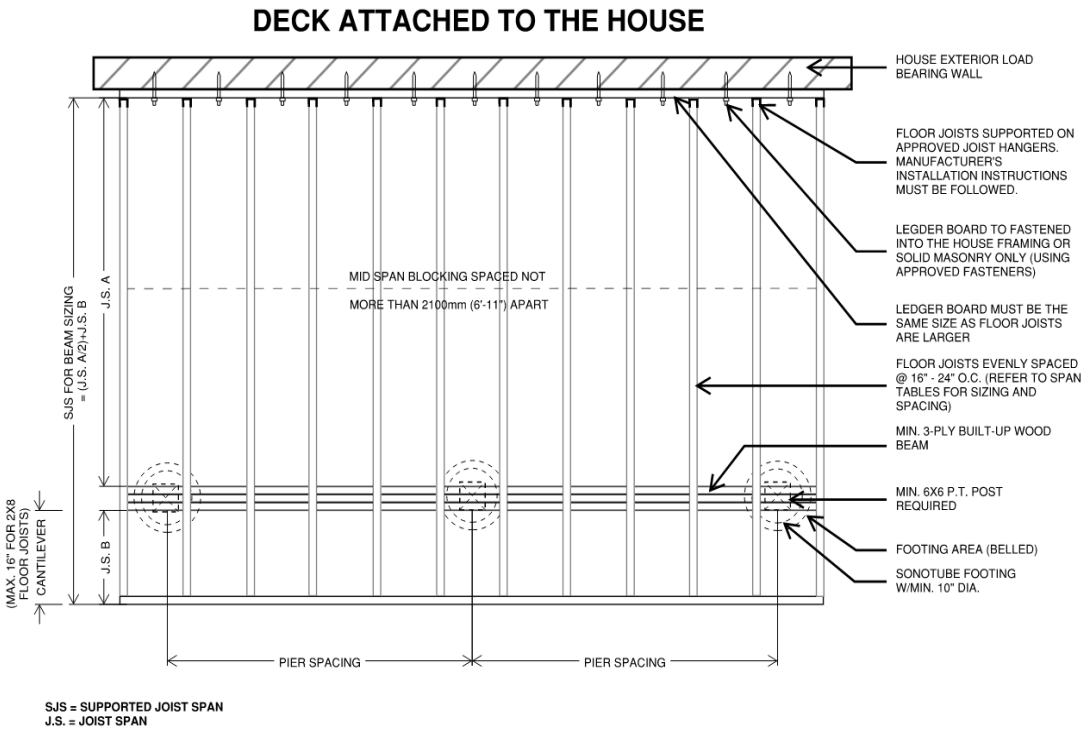

Figure 3. Deck attached to the house plan

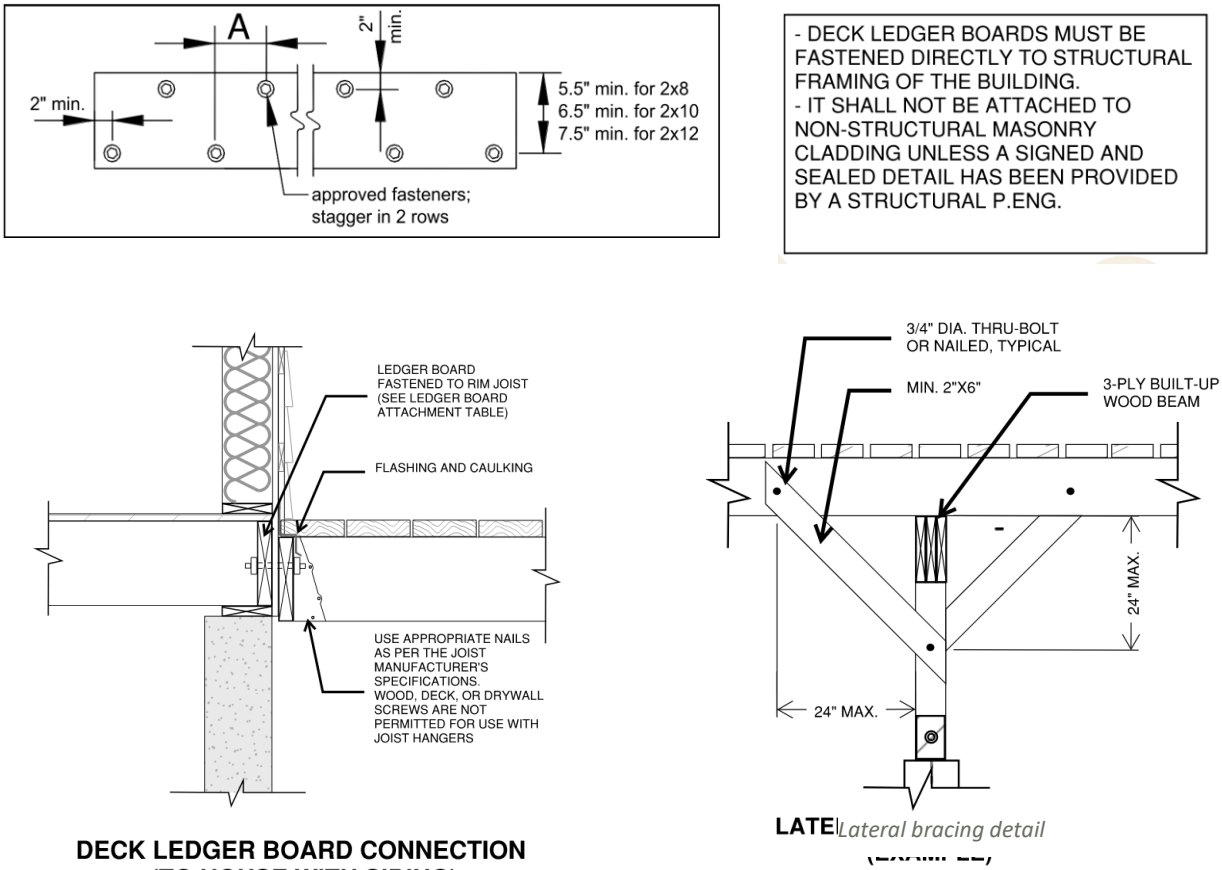

Figure 4. Deck ledger to house with siding attachment – Lag bolt spacing and lateral bracing detail

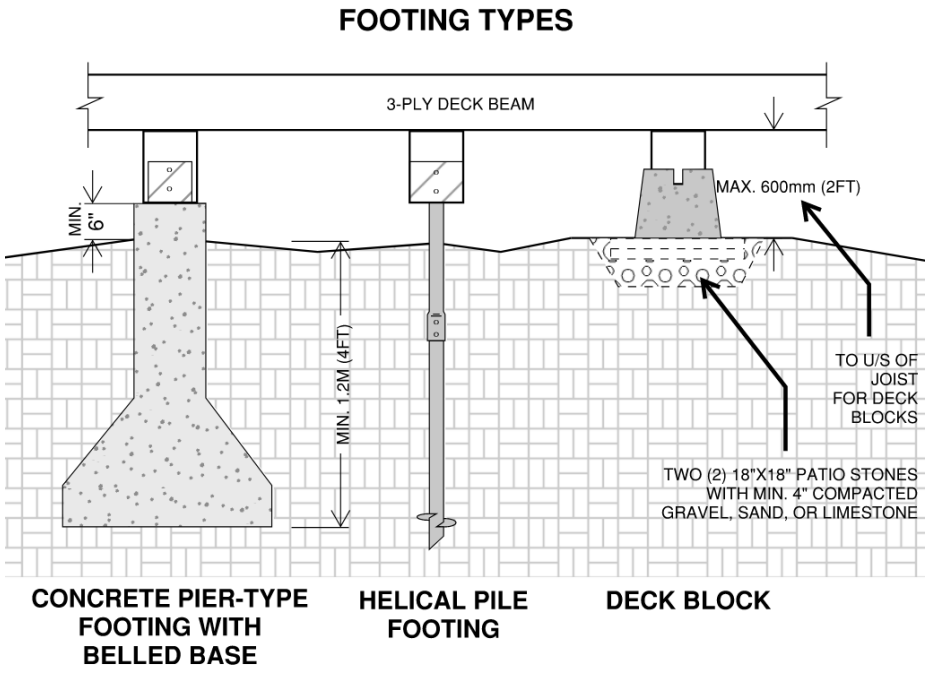

Figure 5. Footing types

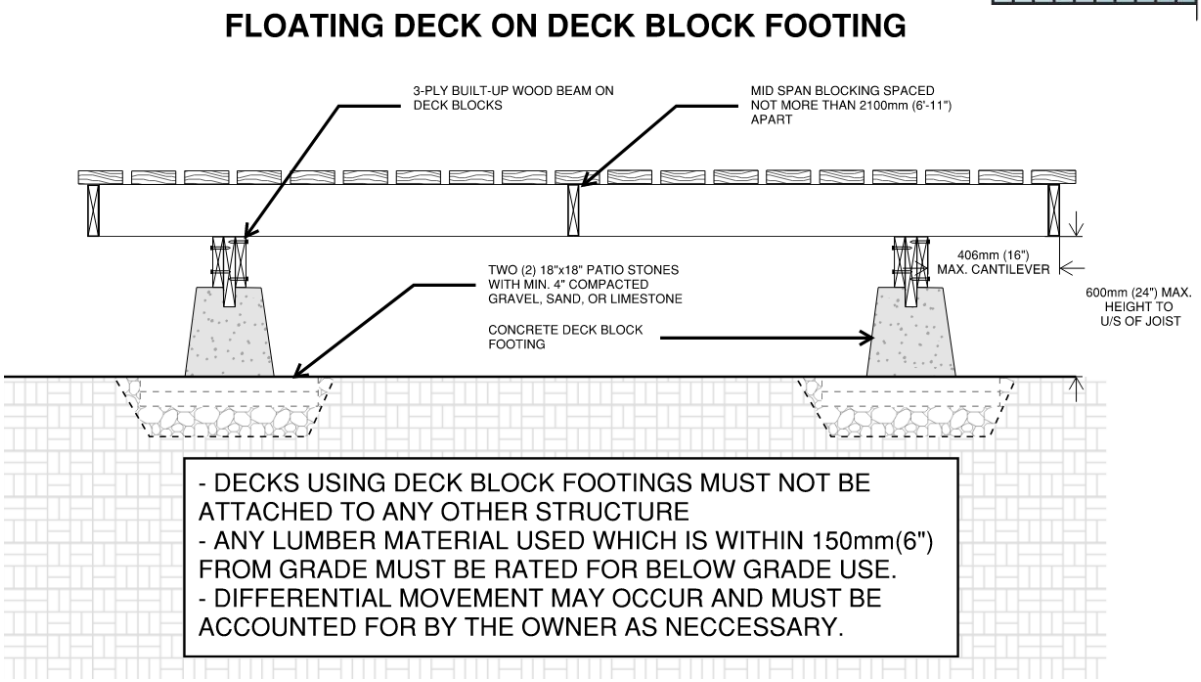

Figure 6. Floating deck on deck block footing

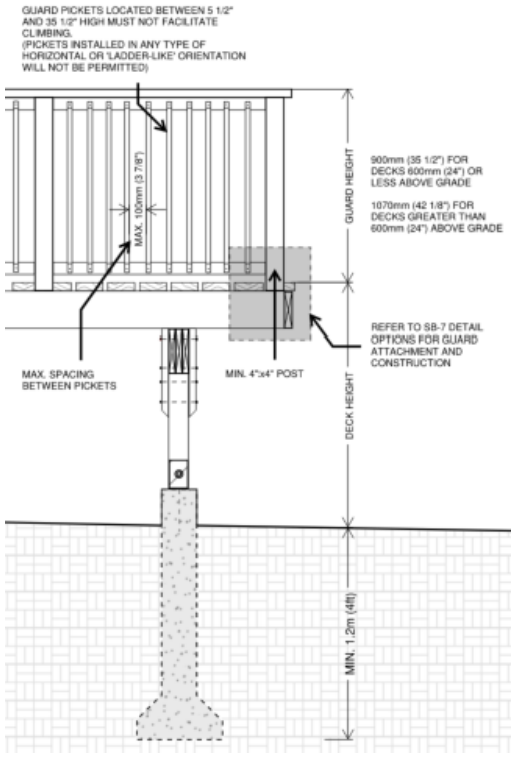

Figure 7. Deck guard detail

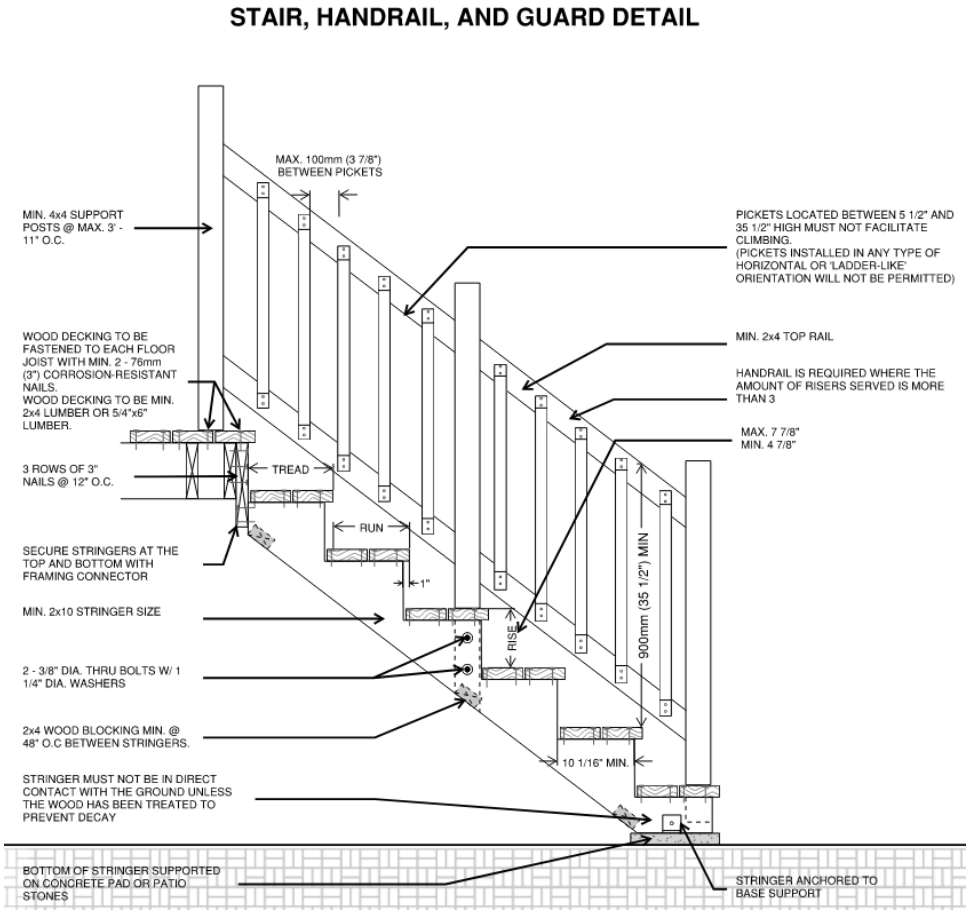

Figure 8. Stair, handrail, and guard detail

2024 OBC Supplementary Standard SB-7 (Guards for Housing and Small Buildings) example details

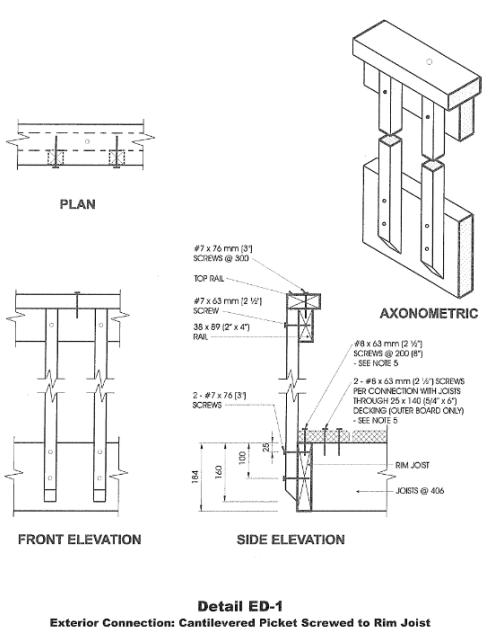

Figure 10. Exterior connection: cantilevered picket crewed to rim joist

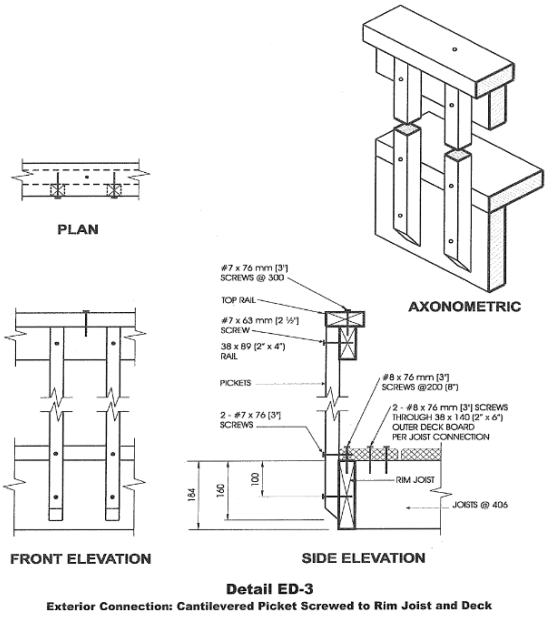

Figure 9. Exterior connection: cantilevered picket screwed to rim joist and deck

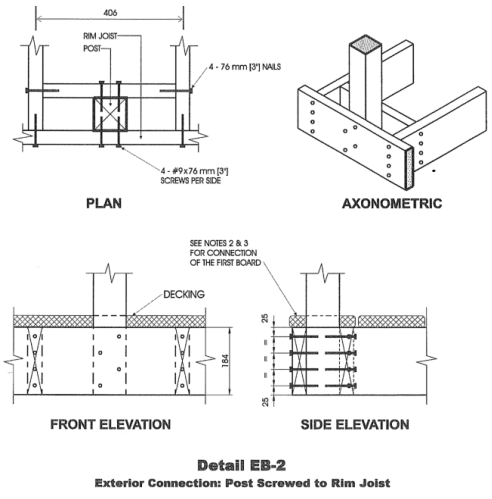

Figure 12. Exterior connection: Post screwed to rim joist

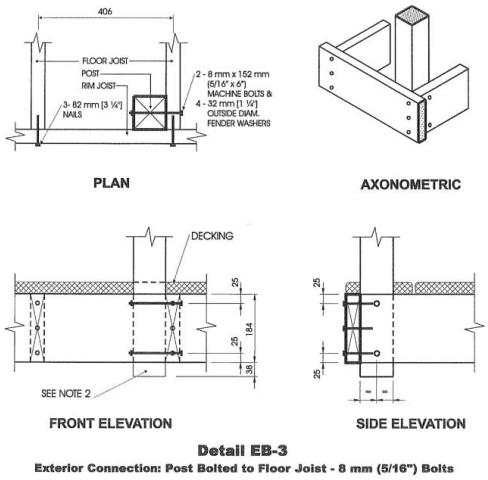

Figure 11. Exterior connection: post bolted to floor joist – 8 mm (5/16”) bolts

General information

i. A building permit may not be required if all the following apply:
   - the deck has a maximum height of 12” (305mm) measured between the walking surface and the adjacent grade, when measured at the lowest point located 48” (1.22m) from any side of the deck perimeter,
   - the deck occupies an area of no more than 323ft² (30m²),
   - the deck does not provide access to an entrance/exit of the building, regardless of size, and
   - the deck is not structurally attached to a building.

   NOTE: Although a building permit may not be required, you must still comply with the requirements of the Township of Severn’s Zoning By-Law.

ii. All building permits are required to be reviewed and approved by the Planning department. It is always recommended to reach out to the Planning department to ensure that the proposed deck complies with Severn’s Zoning By-law. Some key items you will need to review to ensure it complies is:
   a. lot coverage
   b. all decks 1.0m or greater in height will count towards your lot coverage
   c. setbacks from property lines

   Please refer to the Zoning By-law to review your property’s specific zoning.

iii. Wood used to build a deck must be naturally resistant to decay, treated to resist decay, or pressure treated.

iv. The minimum permitted post size is 6x6.

v. A pier-type concrete footing must be at least 10” in diameter and large enough to fully support the base of a 6x6 post.
vi. The minimum built-up wood beam size is S-P-F 3-2x8. Two-ply and “box-type” beams are not permitted. Refer to the Design Guide in this document for beam sizing.
vii. All lumber must be graded and marked with the appropriate grade stamp.
viii. If the walking surface of the deck is more than 24” (610mm) above finished grade, a guard at least 36” (915mm) high is required. This height must be measured within 48” (1.22m) of the deck edge.
ix. If the deck surface is more than 72” (1.83m) above finished grade, a guard at least 42” (1.067m) high is required.
x. Openings between guard pickets must be no more than 3 7/8” (100mm).
xi. Guard requirements are found in Section 9.8. and Supplementary Standard SB-7 of the 2024 OBC.
xii. Guard pickets must be installed vertically and must not create a surface that can be climbed.
xiii. Guards made from materials or systems other than the wood systems described in SB-7, such as glass or aluminum, must be designed by an engineer. This will result in additional documentation required to be submitted with your permit application.
xiv. Handrails may also be constructed as a guard if:
xv. They meet the minimum guard height requirements noted herein.
xvi. Where the top rail or ‘cap’ of the guard acts as the handrail portion, it shall be graspable along the length of the required handrail, from the bottom riser to the top riser. (e.g. a 2x4 member would be considered as graspable)

xvii. If you plan to use composite decking, Canadian Construction Materials Centre (CCMC) approval documents must be submitted with your permit application. The decking must also be installed according to the manufacturer's instructions.

xviii. The OBC includes setback requirements from septic systems to any building, including a deck. Please make sure these setbacks are met and shown on the site plan submitted with your building permit application.

xix. Any changes to the approved, issued permits, are required to be submitted to **buildingpermits@severn.ca** for formal review and approval before proceeding with the proposed revision onsite.

Deck Building Permit requirements

The required details are required to be included on the construction drawing package to support the proposed deck. If any information is missing from your drawings, review of your building permit application may be delayed.

Construction Drawings are required to show all materials and dimensions as indicated on the sample drawings included in this guide:

- ☐ Plan view of proposed deck
- ☐ Side view of proposed deck
- ☐ Front view of proposed deck
- ☐ Cross section(s) drawing
- ☐ Stair(s) section plan
- ☐ Guard construction details

More information on the building permit application process can be found in the Township's Building Permit Guide.

For more information on Building Permit fees, please refer to Schedule "A" of the Township's Building By-law.

We only require digital copies of all construction drawings and engineered lot grading plans, if applicable. Paper or printed copies are not needed.

Please submit all building permit applications to **buildingpermits@severn.ca.**