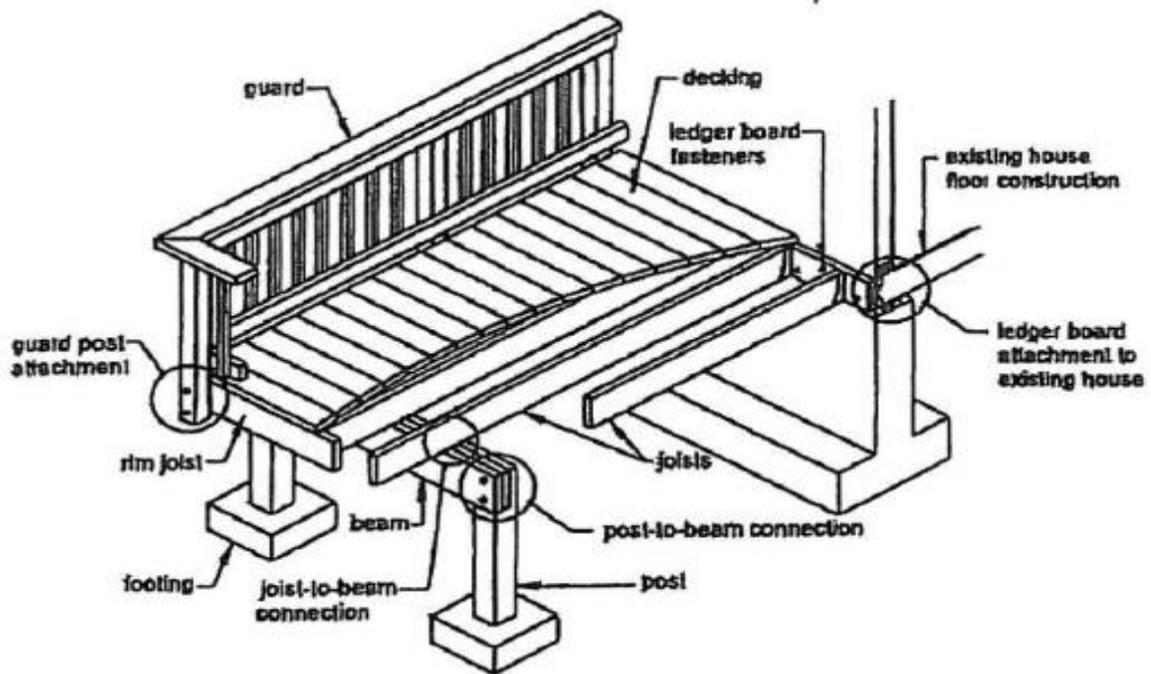


Deck Construction Guide

Standard Residential Deck Details



The information contained in this document is for reference only. It is intended to assist homeowners with their deck project and ensuring compliance with the requirements of the Ontario Building Code. The drawings and details specified are typical construction details and other methods may be permitted upon authorization from Building Services. All construction shall be inspected including footings prior to placing concrete, framing and final inspection prior to use. Confirmation for the satisfactory compliance with the OBC will be at the discretion of the Building Official. For more complicated designs, the assistance of a professional designer should be obtained to ensure compliance with the Ontario Building Code and other regulations. It is beyond the scope of this document to detail every possible condition.

All construction shall conform with the Ontario Building Code

Zoning Requirements and Agency Approvals

Permitted Deck Locations: Zoning Regulations – Unenclosed Decks Only

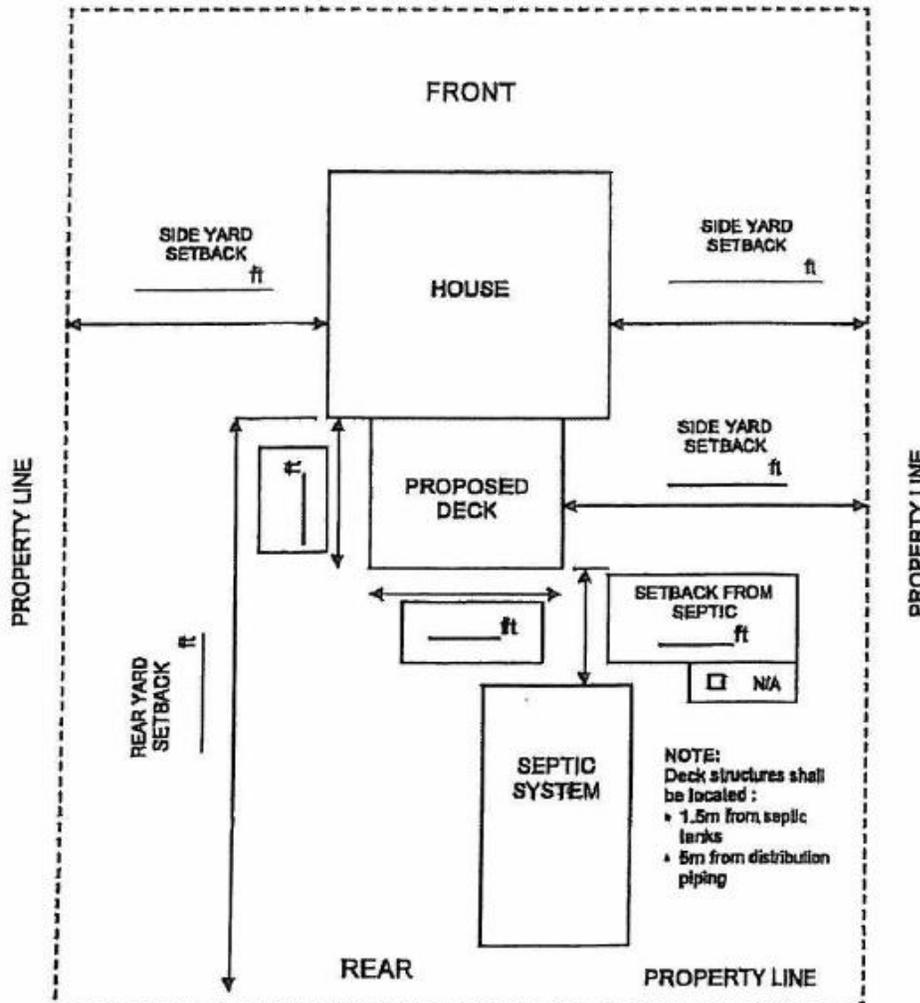
General Provisions	Kincardine Comprehensive Zoning By-law 2003-25
Required Set-Backs	Section 6.4.3(2)i: In an interior side yard or rear yard located no closer than 1 metre to the interior side yard and rear lot lines.
Height Considerations	A deck over 24" in height requires appropriate guards/railings
Maximum Lot Coverage	30%

Some properties may have specific zoning requirements and therefore, it is suggested to confirm the zoning of your property before proceeding with your project (ie. Environmental Protection areas).

Information Required to Obtain a Building Permit

Where within your property are you building the deck?

Fill in the information below or provided a copy of your survey and sketch the location of the deck. Include all distances from all property lines and septic system.



Joists, Beams and Pier Sizing

The Municipality of Kincardine has differing areas of snow load calculations based on elevation. The Part 9 snow load for all decks within the area shall have a Specified Snow Load of 2.0kPA unless provided by a qualified designer based on the specific snow loading areas. If the live load will exceed 2.0KPA including hot tubs or drift loading it must be designed by a professional person.

Joist Span

Size	Spacing	Span
2x8	12" o/c	12'-0"
	16" o/c	11'-0"
	24" o/c	10'-0"
2x10	12" o/c	14'-0"
	16" o/c	13'-0"
	24" o/c	12'-0"
2x12	12" o/c	14'-0"
	16" o/c	14'-0"

Note: All lumber SPF or better – solid blocking required if span exceeds 6'-11"

Joist Span	Pier Sizing				
	6'-0"	8'-0"	10'-0"	12'-0"	14'-0"
6'-0"	2 ply 2x8	2 ply 2x8	3 ply 2x8	3 ply 2x10	3 ply 2x12 4 ply 2x10
8'-0"	2 ply 2x8	2 ply 2x8	3 ply 2x8	3 ply 2x10	3 ply 2x12 4 ply 2x10
10'-0"	2 ply 2x8	3 ply 2x8	3 ply 2x8	3 ply 2x10	3 ply 2x12 4 ply 2x10
12'-0"	3 ply 2x8	3 ply 2x8	3 ply 2x10 4 ply 2x8	3 ply 2x10	3 ply 2x12 4 ply 2x10
14'-0"	3 ply 2x8	3 ply 2x10	3 ply 2x10 4 ply 2x8	3 ply 2x12 4 ply 2x10	3 ply 2x12 4 ply 2x10

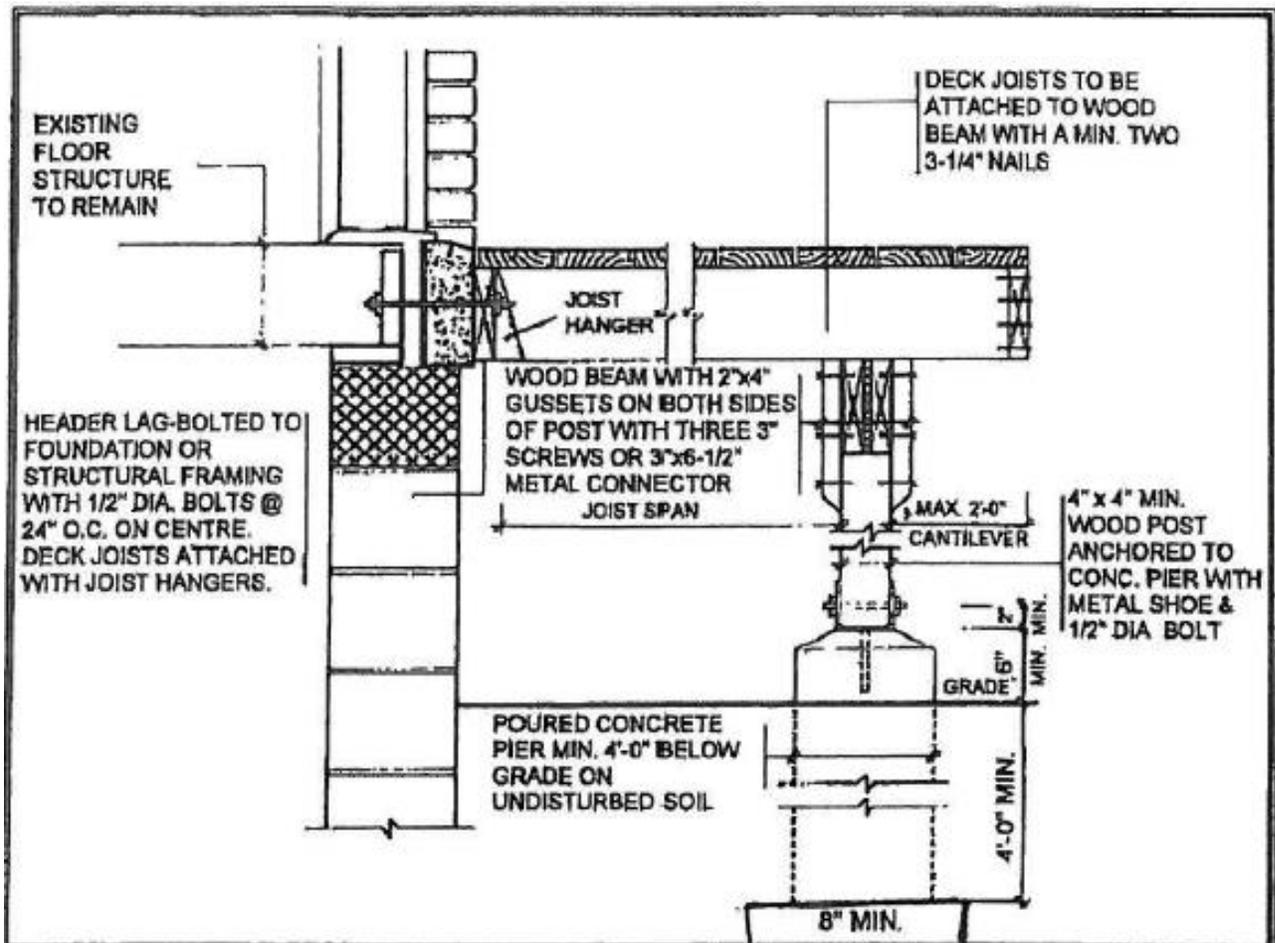
Pier Sizes (Diameter in inches)

Joist Span	Pier Spacing				
	6'-0"	8'-0"	10'-0"	12'-0"	14'-0"
6'-0"	8"	8"	10"	10"	*
8'-0"	8"	10"	10"	12"	*
10'-0"	10"	10"	12"	12"	*
12'-0"	10"	12"	12"	15"	*
14'-0"	12"	12"	15"	21"	*

Note: Footings are required for all piers.

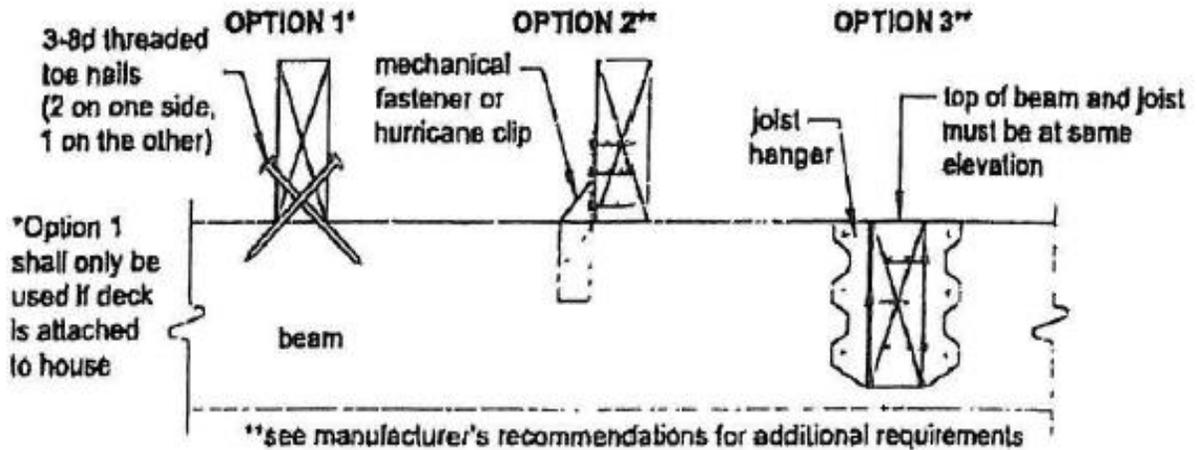
Construction Details

Building Section of Deck Construction



Construction Notes:

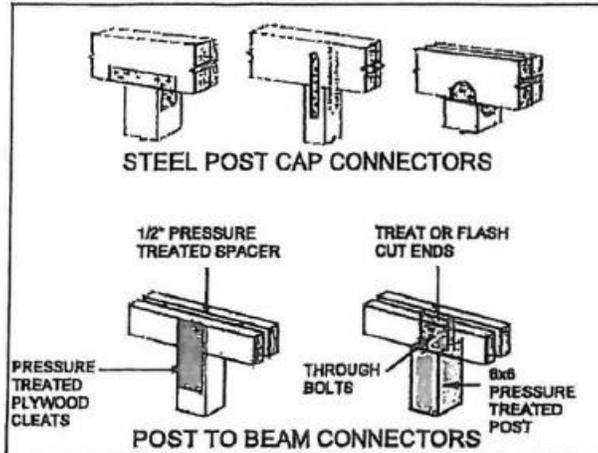
- Decks must be attached to the house foundation or structural framing (not breck veneer with mininum 1/2" diameter bolts at a maximum 24" (600mm) on centre.
- Maximum cantilever for joists and beams beyond supports is 24" (600mm)
- Widen (bell) bottom of pier where pier spacing exceeds 8 feet (2.44m). In course grained soils (sands and gravels) it may be necessary to use a 10" or 12" auger, pour a concrete base then place the 8" sono tube on top.
- Footings/piers shall bear on undisturbed soil a minimum 48" below grade
- Deck posts shall be centrally located on footings/piers.



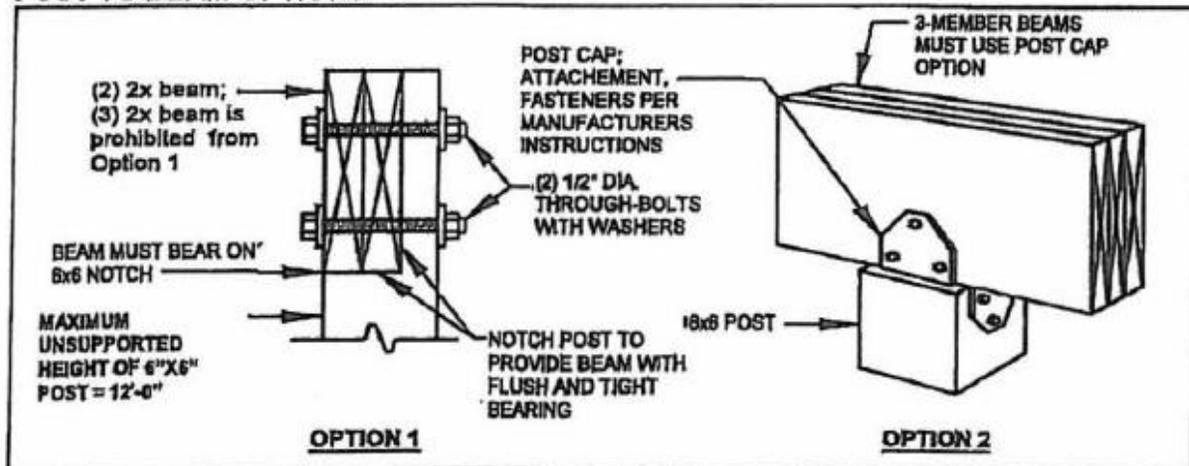
Design based on SB-7 of the Supplementary Guidelines to the 2012 Ontario Building Code. Last update November 9th, 2015 JB

Connection Details

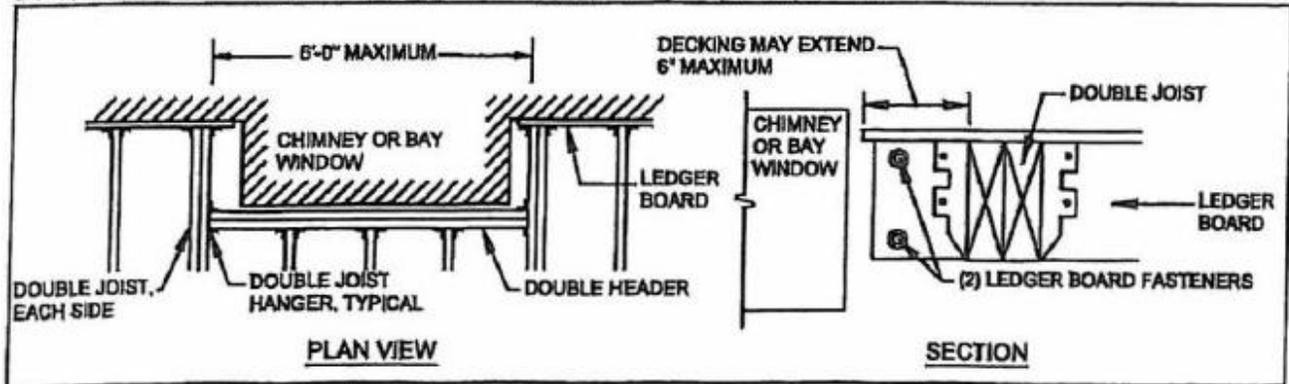
CONNECTION OF FLOOR JOISTS TO BEAM SUPPORT



POST TO BEAM OPTIONS



DETAIL FOR FRAMING AROUND A CHIMNEY OR BAY WINDOW



“se

Design based on SB-7 of the Supplementary Guidelines to the 2012 Ontario Building Code. Last update November 5th, 2015 JB

Ledger Board Attachment

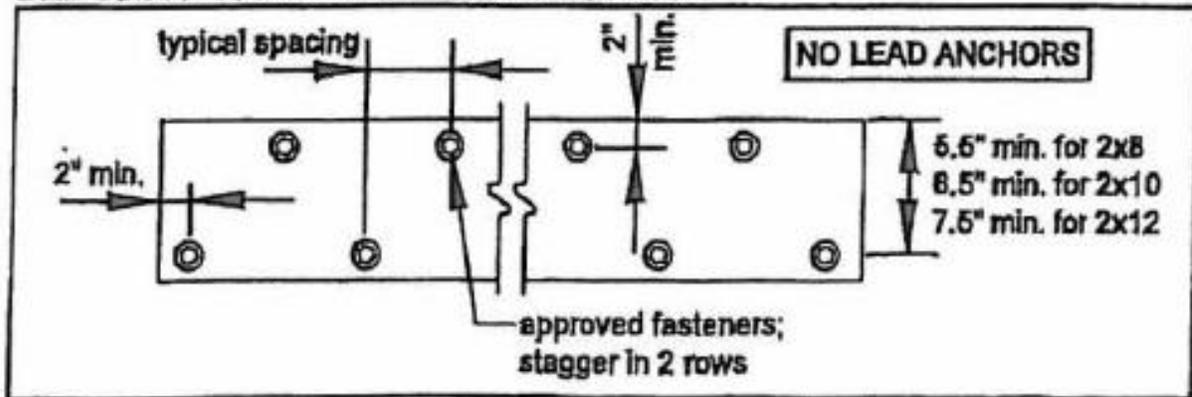
- Decks are usually supported on one side by a ledger attached to the house. This ledger attachment is critical to ensure the deck is safely and securely supported to the house. There are very specific requirements that must be met. Follow the diagrams closely for the proper attachment of the ledger.
- The deck ledger shall NOT be nailed to the house – it must be lagged screwed or bolted to the structure of the house.
- The size and spacing of the lag screws is based on their capacity. Lag screw values are assumed to be 325 pounds for ½-inch lag screws and 190 pounds for 3/8-inch lag screws. The span of the floor joists determines how much load is being transferred to the ledger and thus to the lag screws.

Deck Ledger to House Attachment – Lag Bolt Spacing (see diagrams)

Lag Bolt Size	Joist Span			
	Up to 6'-0" (1.8m)	8'-0" (2.4m)	10'-0" (3.0m)	12'-0" (3.6m)
1/2" (12.7mm)	32" o.c. (812mm)	16" o.c. (400mm)	16" o.c. (400mm)	12" o.c. (300mm)
Equivalent 16" O.C. Joist Spacing	Every other joist space	Every joist space	Every joist space	Each joist Space with two every other space
3/8" (9.5mm)	24" o.c. (609mm)	12" o.c. (300mm)	12" o.c. (300mm)	8" o.c. (200mm)
Equivalent 16" O.C. Joist Spacing	Two every third joist space	Each joist space with two every other space	Each joist space with two every other space.	Two each joist space with three every other space

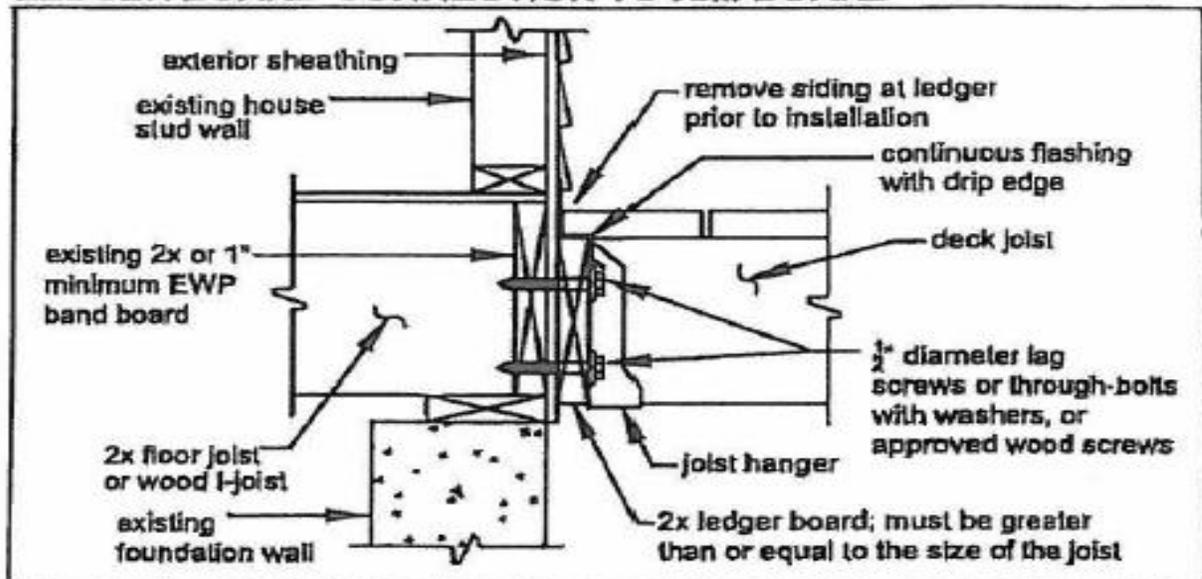
- Deck ledgers shall be minimum 2x8 pressure-preservative-treated No.2 grade lumber or other approved materials as determined by good engineering practices.
- When solid-sawn pressure-preservative-treated deck ledgers are attached to engineered wood products (structural composite lumber rim board or laminated veneer lumber), the ledger board attachment shall be designed in accordance with the manufacturer's recommendations or good engineering practices.
- Pilot holes shall be pre-drilled with a size between 17/32" to 9/16".
- Lag screws are only permitted where existing site conditions can be confirmed.

LEDGER BOARD FASTENER SPACING

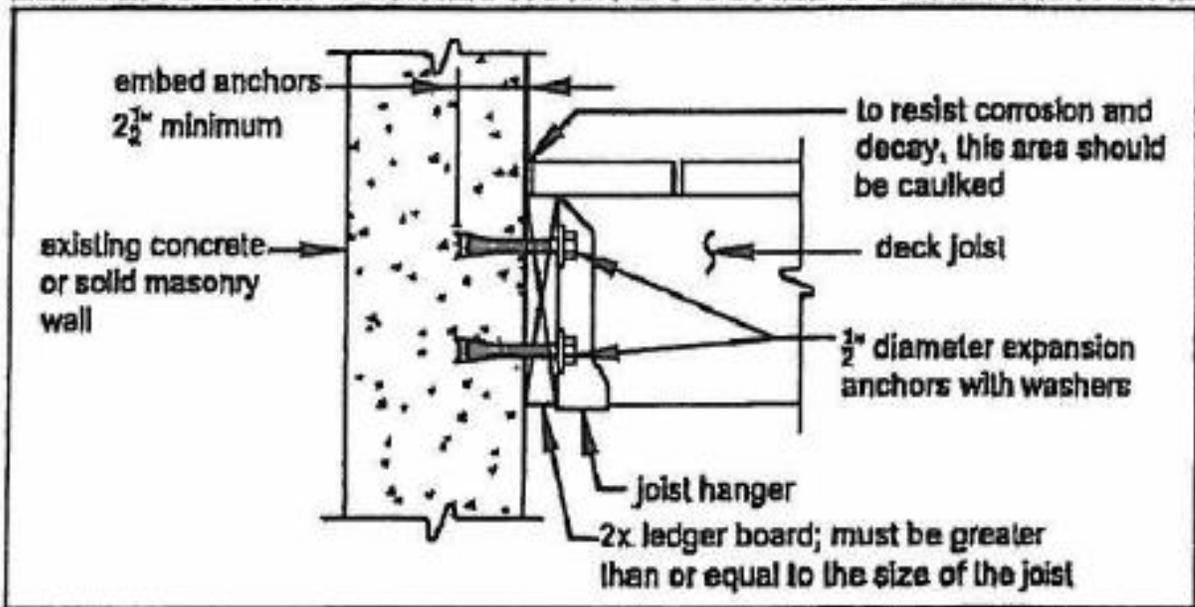


Ledger Board Connections

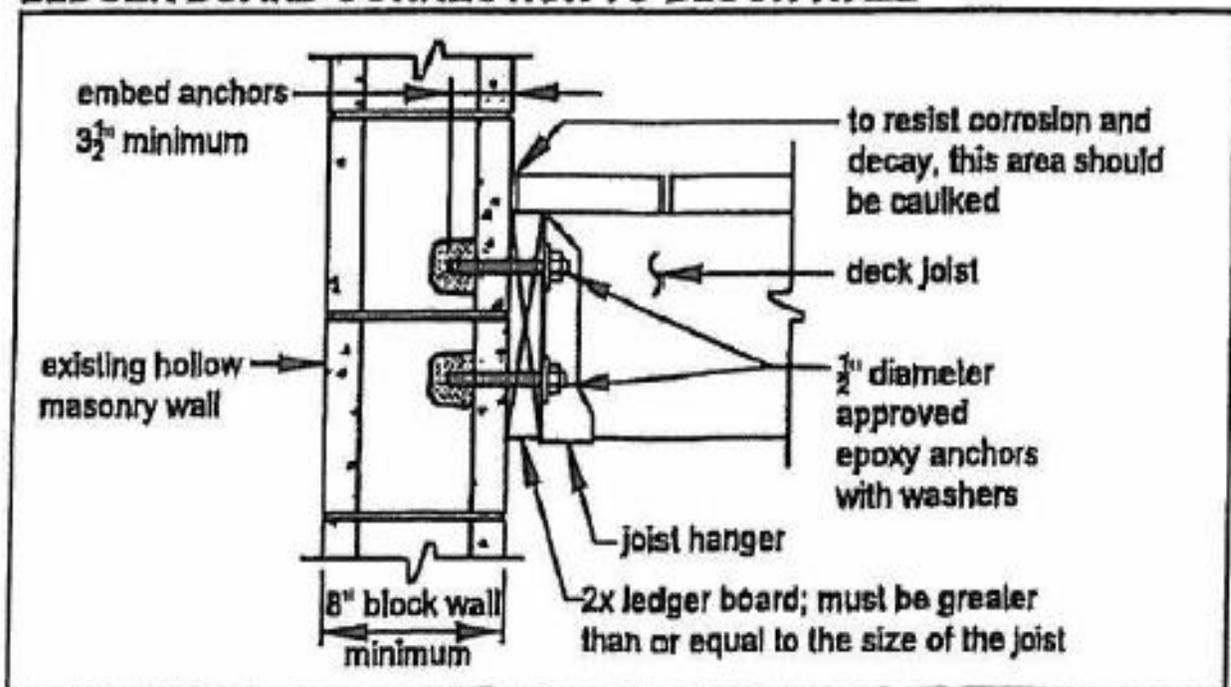
LEDGER BOARD CONNECTION TO RIM BOARD



LEDGER BOARD CONNECTION TO POURED FOUNDATION WALL



LEDGER BOARD CONNECTION TO BLOCK WALL



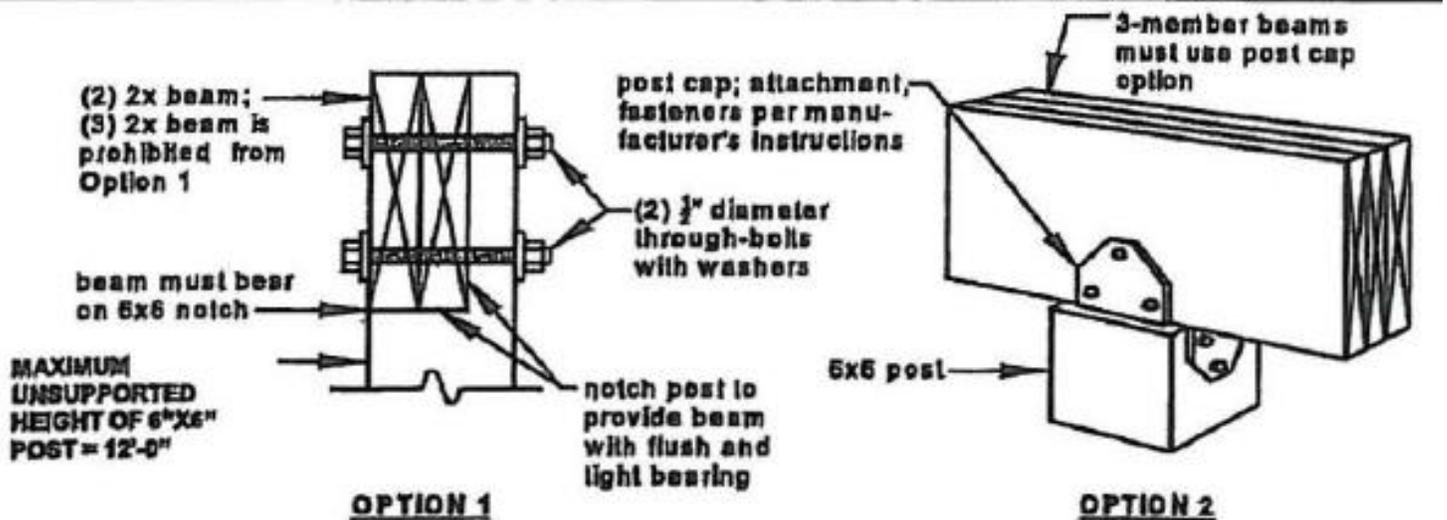
Structural Requirements for Post Sizing

Deck Supports: Post sizing

Tributary Load: Supported Deck Area m2		
Municipality of Kincardine snow load is 2.6kPa (56lbs/ft2)		
Deck supporting hot tubs must be designed by a qualified person		
Post Size	Maximum Height	Area m2 (ft2)
89mm x 89mm (4x4)	1.0m (3'-3")	8.09 (87)
	1.5m (5'0")	4.42 (48)
	2.0m (6'7")	2.35 (25.3)
140mm x 140mm (6"x6")	2.0m (12'-0")	10.2 (110)
	2.5m (8'-2")	6.95 (74.8)
	3.0m (10'-0")	4.74 (51)
	3.5m (11'-6")	3.29 (35.4)



Post to Beam Options

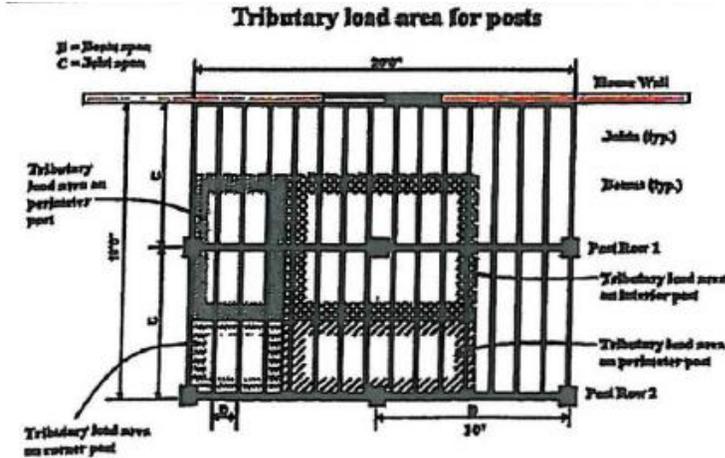


Example for loading on "P1":

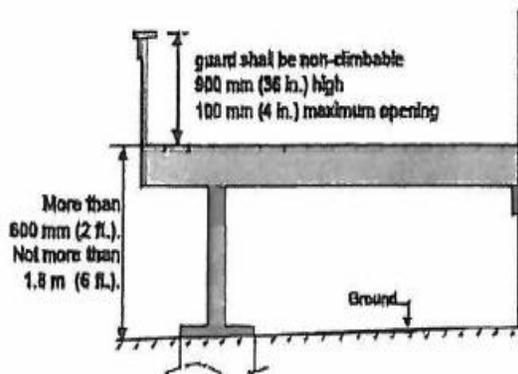
Tributary Area

$$\begin{aligned}
 &= ((8/2) + (8/2)) \times ((10 \times 2) + (10/2)) \\
 &= ((4+4)) \times (5+5) \\
 &= 8 \times 10 \\
 &= 80 \text{ ft}^2
 \end{aligned}$$

From the table above; a 6"x6" post
With a maximum height of 12'-0" is permitted.



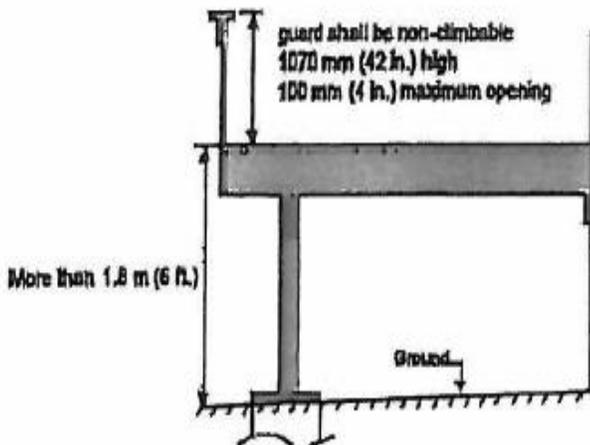
Required Guards



The Ontario Building Code (OBC) requires that guards be installed on walking surfaced on each side that is not protected by a wall where OBC Div B 9.8.8.1(1):

- There is a difference in elevation of more than 600mm (23 5/8") between the walking surface and the adjacent surface, or
- The adjacent surface within 1.2m (3'11") from the walking surface has a slope of more than 1/12.

The OBC requires that an exterior guard shall be (OBC Div B 9.8.8.3):



- Not less than 900mm (2'-11") high where the walking surface served by a guard is not more than 1.8m (5'-11") above finished ground level.
- Not less than 900 mm (2'-11") high for guards installed on flights of steps, where the height of a guard on a flight of step is measured vertically from a line drawn through the leading edge of the treads served by the guard, and
- Not less than 1070mm (3'-6") in all other situations.

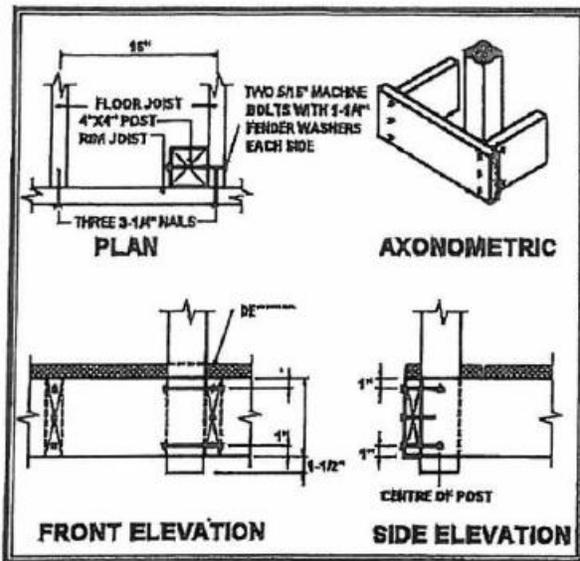
Guards continued.

The OBC also requires that guards be constructed so that (OBC Div B 9.8.8.5 and 9.8.8.6):

- Openings through any required guard shall be of a size that will prevent the passage of a spherical object having a diameter of more than 100mm (4”), and
- No member, attachment or opening will facilitate climbing.

Guards

Option “A” Post and Rail System Post Detail

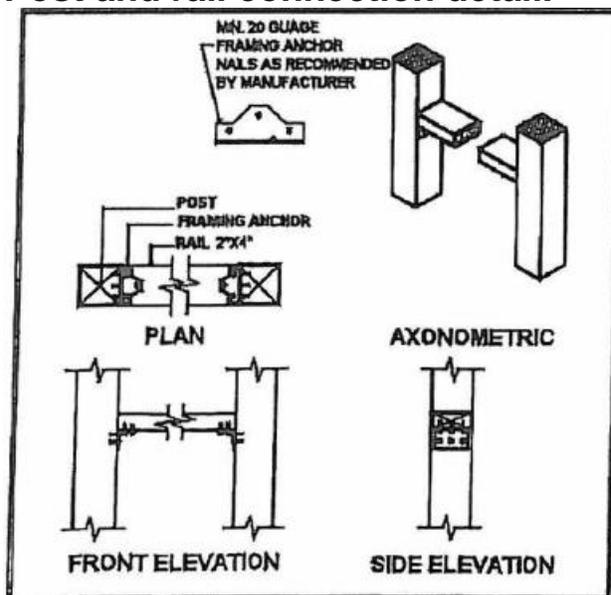


Construction Notes

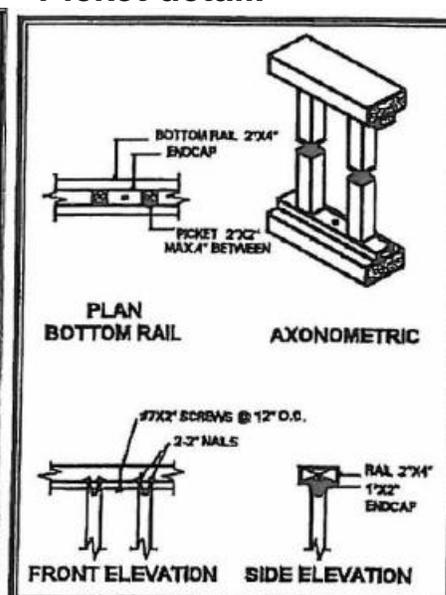
- Decking is omitted from Post Detail plan view and the axonometric for clarity.
- Joists spaced at maximum 16” on centre
- Maximum spacing between posts 3’- 11”
- All fasteners shall be resistant to corrosion
- All lumber shall be decay resistant and all cut ends of preservative treated lumber shall be treated to prevent decay.
- Minimum height of guard for a deck between 24” and 5’-11” above grade shall be 35”

- Minimum height of guard for a deck more than 5’-11” above grade shall be 42”
- Maximum 4” opening between pickets and no member or attachment between 4” and 35” shall facilitate climbing.

Post and rail connection detail.

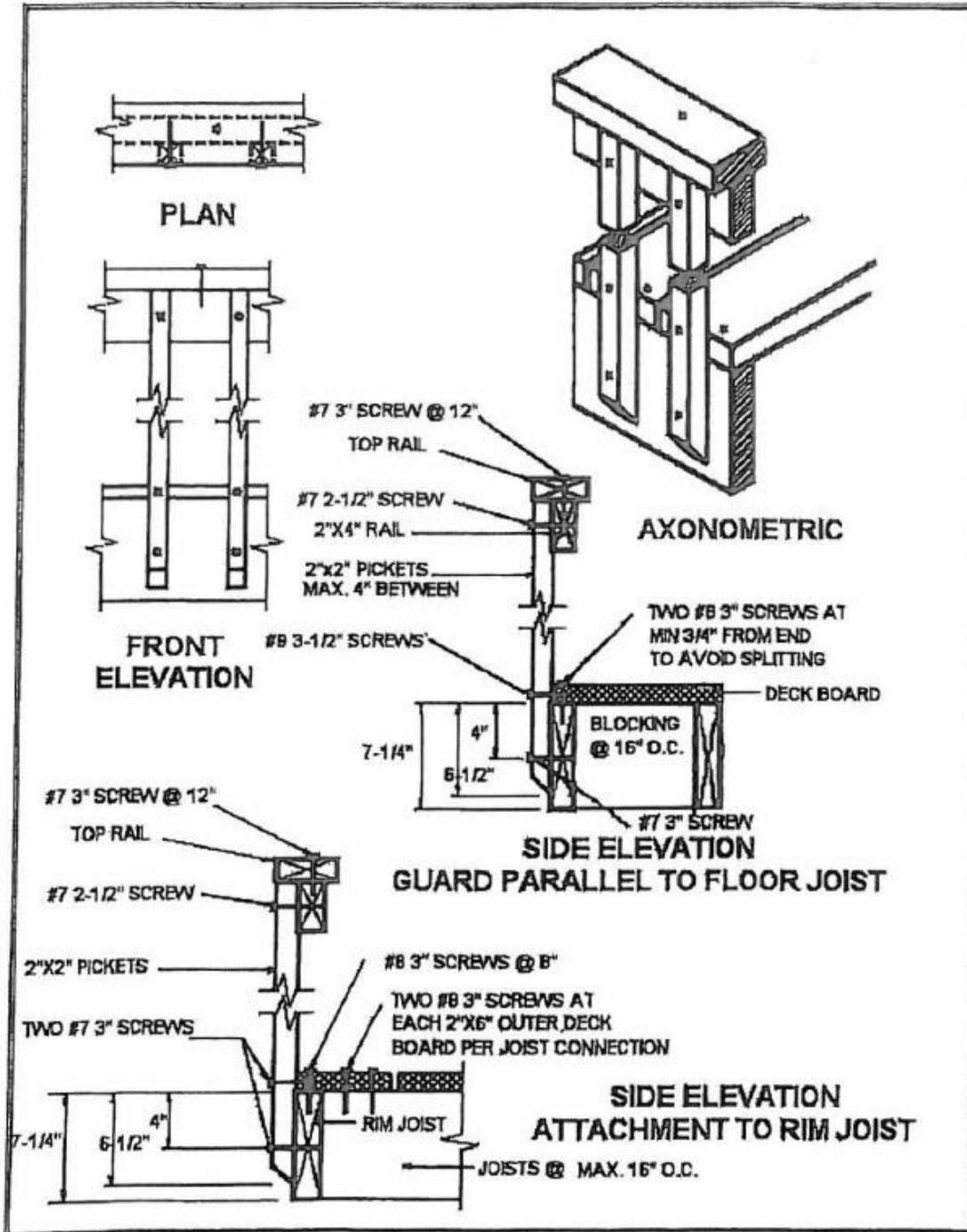


Picket detail.

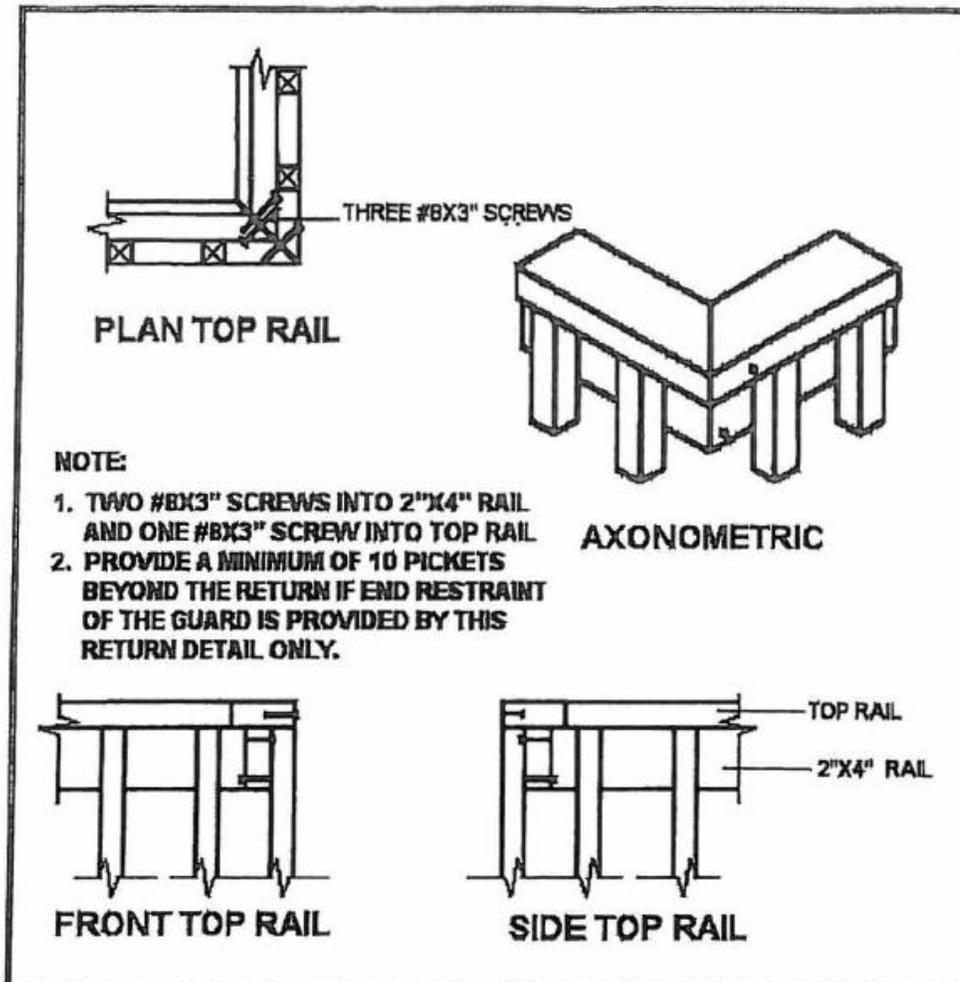


Guards

Option "B": Cantilevered Picket System



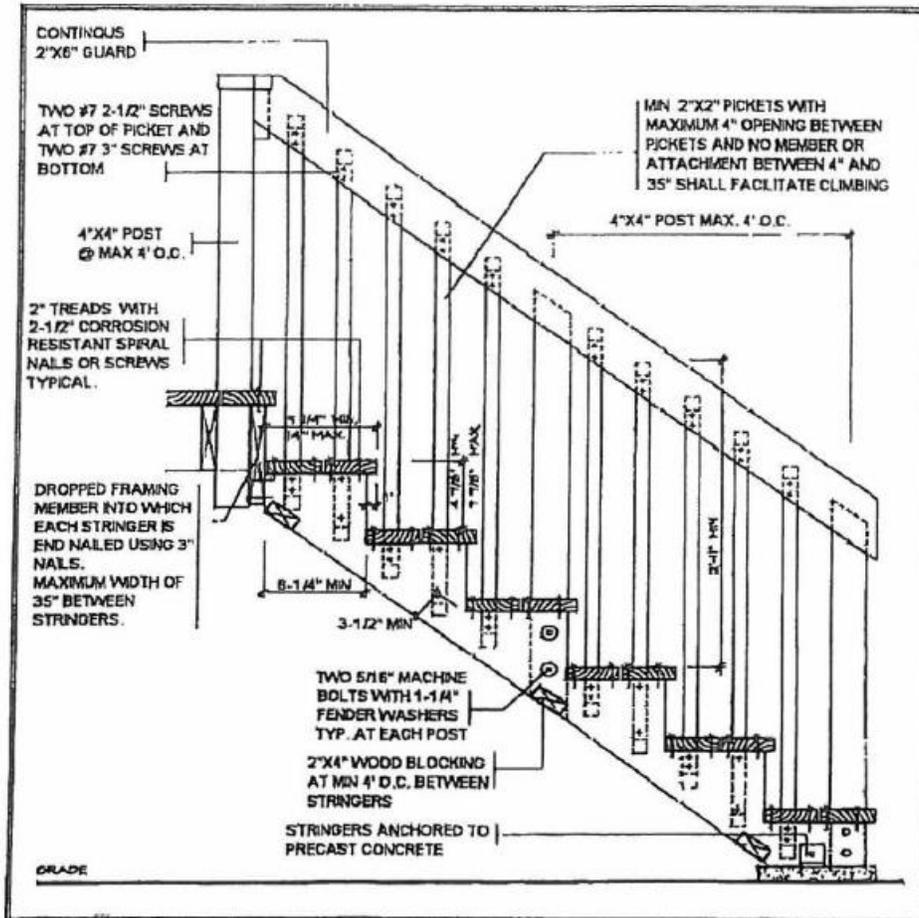
Guards (Cantilevered Picket Continued)



Construction notes:

- All fasteners shall be resistant to corrosion.
- All lumber shall be decay resistant. All cut ends of preservative treated lumber shall be treated to prevent decay.
- Minimum height of guard for a deck between 24" and 5'-11" above grade: 35"
- Minimum height of guard for a deck more than 5'-11" above grade: 42"
- Maximum 4" opening between pickets and no member or attachment between 5-1/2" and 35" shall facilitate climbing

Stair Details



Construction notes:

- The OBC requires that a handrail be installed on (OBC Div B 9.8.7.4(2)):
 - Every exterior stair having more than 3 risers and
 - Every ramp rising more than 400mm (15 3/4")
- The OBC requires that every handrail shall be mounted at a height (OBC Div B 9.8.7.4(2)):
 - Not less than 800mm (2'-7") and
 - Not more than 965 mm (3'-2")
- Provide a handrail 31" to 32" high on stairs if more than three risers. Provide a guard on both sides of stair where the stairs exceeds 6 risers.
- All steps to be equal rise and run between landings.

Ontario Building Code Requirements Supplementary Standards SB7

Building materials:

Lumber grades shall meet the following (OBC SB-7 2.1.1):

- The minimum grade of softwood dimensional lumber for posts, rails and joists shall be Northern Species, No. 2
- The minimum grade of softwood dimensional lumber for pickets shall be Northern Species, No.2 Picket Grade and
- Wood pickets shall be free of loose knots.

Lumber for guard and floor systems must be resistant to decay (OBC SB-7 2.1.6):

- A species resistant to decay preservative treated to prevent decay, or
- Pressure treated and all cut ends of preservative or pressure treated lumber shall be treated to prevent decay.

Connectors used in deck construction shall (OBC SB-7 2.1.4):

- Nails, screws, lag bolts and machine bolts shall not cause splitting of wood elements
- Fasteners shall be resistant to corrosion, and nails shall be common spiral

Minimum Size of Load Bering Elements (OBC SB-7 2.1.1):

Guard Element	Post	Top Rail	Bottom Rail	Picket/Balluster
Minimum size, mm (in)	89mmx89mm (4"x4" nominal)	38mmx89mm (2"x4" nominal)	38mmx89mm (2"x4" nominal)	32mmx32mm (1 9/32"x1 9/32")

Minimum Size of Floor Elements (OBC SB-7 2.1.3):

Floor Element	Minimum Size mm (in)
Dimension Lumber Decking	25mm x140mm (5/4"x6"nominal) when each plank is fastened with 2- 63mm (2 1/2") nails
	38mm x 89mm (2"x4" nominal) when each plan is fastened with 2 – 76mm (3") nails
Dimension Lumber Joists	38mm x 184mm (2" x 8" nominal)