TOWNSHIP OF
CAVAN MONAGHAN

Have it all. Right here.

Deck & Ramp Design Guide

Revised November 2024

Building and Planning Department

988 County Rd 10
Millbrook, Ontario
L0A 1G0

www.cavanmonaghan.net

Phone: 705-932-2929
Fax: 705-932-3458

This guide is for informational purposes only. It is the responsibility of the Applicant / Designer to review the Building Code to ensure all information is complete, accurate and up to date.

Table of Contents

Township of Cavan Monaghan
Deck and Ramp Guide

Definitions

OBC or **O.B.C.** refers to the Ontario Building Code.

A '**Deck'** is a raised uncovered platform that is attached to a dwelling. A deck will require a Building Permit if it meets any of these criteria:

- Higher than 600 mm (23 5/8") above adjacent ground level at any point.
- Structurally attached to the house or any other building with a foundation.
- Larger than 10 sq. m. (108 sq. ft.)

A '**Porch'** is a covered structure that usually forms part of the entrance of a dwelling. It may be enclosed or unenclosed. Any Porch requires a Building Permit and will require protective guards if it has a walking surface greater than 24" above grade.

A '**Patio'** is an uncovered platform at grade level that is usually constructed of concrete or stone. A Patio generally does not require a Building Permit, unless it interferes with an existing structure.

A '**Ramp'** is a slope or inclined plane for joining two different levels, as at the entrance or between floors of a building. For the purposes of this guide, 'ramp' refers to an exterior wheelchair ramp for residential application.

NOTE: All Decks, Porches, Patios, Ramps and other structures must conform to the Township of Cavan Monaghan Zoning By - law requirements.

Important Notes

A Deck is a floor system, the same as that within the dwelling unit, and must be designed accordingly.

The design and construction of the Deck must conform to the requirements of the current amended version of the Ontario Building Code as well as all other applicable by-laws.

Special consideration must be taken if the Deck is to be used to support a hot tub or other structure, due to the increased load. Review and/or design by a professional engineer registered in Ontario will be required.

This guide is for informational purposes only. It is the responsibility of the Applicant / Designer to review the building code to ensure all information is complete, accurate, and up to date.

The Approval Process

Depending on the complexity of your project, your application may be reviewed in several stages:

1. Planning Department staff will check for compliance with the regulations of the zoning by-law such as proposed use, minimum setback requirements, lot coverage, building height etcetera. A “Land Use Inquiry” form will need to be submitted. See our Website.

2. Building Department Staff will review the proposed construction to ensure compliance with the Ontario Building Code. See our Website for further information about permits.

https://www.cavanmonaghan.net/en/build-and-invest/building-permits-building-permits.aspx?_mid_=20732

If during the review an examiner identifies deficiencies on the drawings or requires additional information, the designer and/or applicant will be notified. There will also be accompanying Plans Examiner Design Notes and markups on the drawing.

Please ensure that the necessary information is submitted promptly. Subject to the type of deficiency, no further processing may occur until the information is received.

When the review of your application is complete and all the requirements have been met, your building permit will be available. The Applicant will be notified.

*** It is unlawful to start construction without the necessary permits. If you start construction without the necessary permits, you may be ordered to stop work, ordered to remove work already completed, or be prosecuted.**
*** The Permit Fee Will Be Doubled ***

Inspections

Construction may commence upon issuance of the Building Permit. Several inspections are required to make sure the work is completed according to the approved plans including those changes noted by the Plans Examiner. Your permit will list the required inspections.
We are using the Cloudpermit online permit application system. Inspections will be requested through Cloudpermit.

Inspections do not happen automatically. It is **your responsibility** to ensure that either you or your contractor requests an inspection at least 24 hours in advance.

A Final inspection is required in order to close the permit and ensure that the work has been completed to Ontario Building Code standards.

You are required to keep your permit and all and inspection reports for your records.

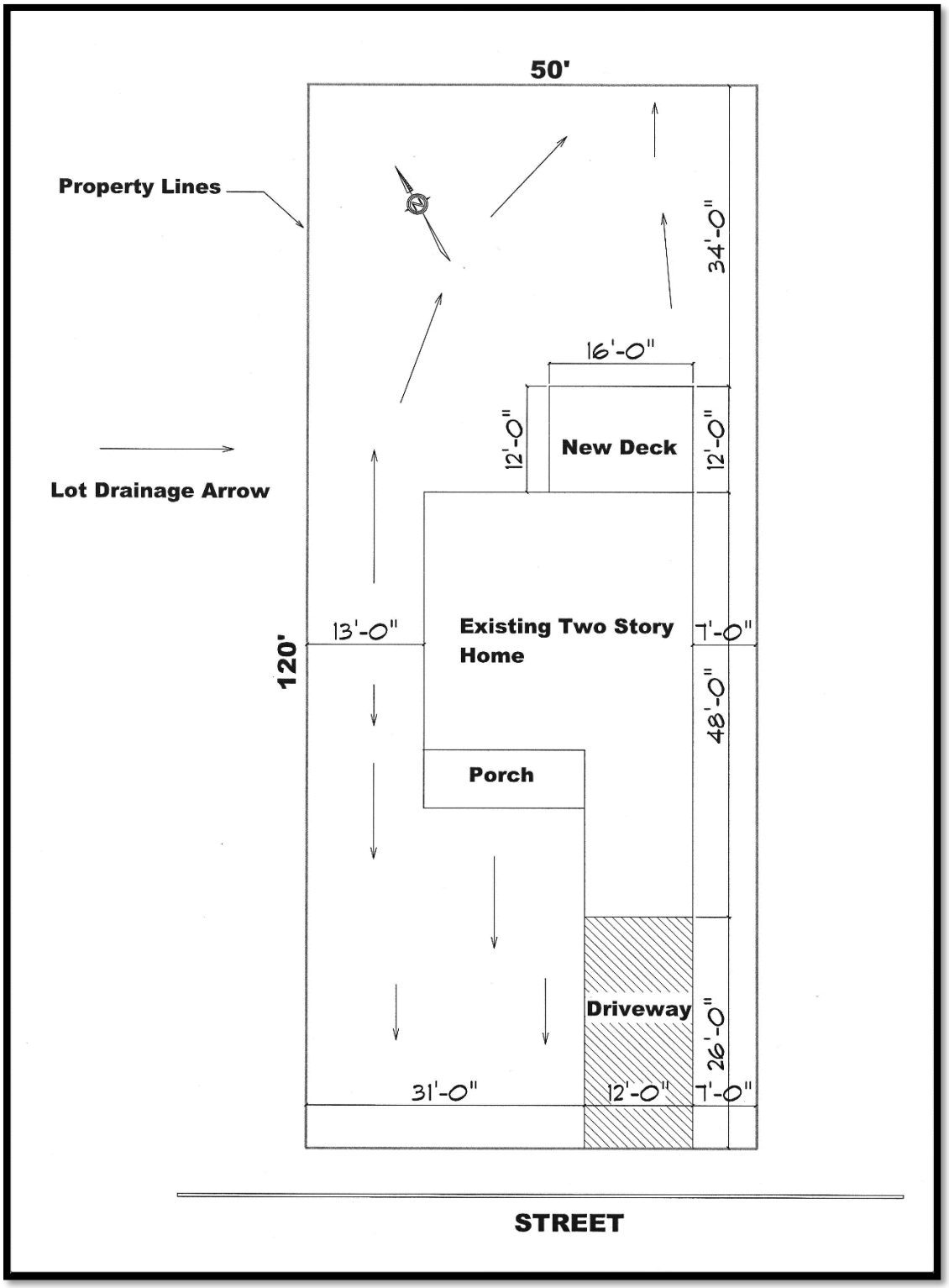
Failure to have inspections may result in having to **uncover and expose work** for inspections.

4

Required Drawings

A site plan is required showing the setbacks from the lot lines and other information as illustrated below.

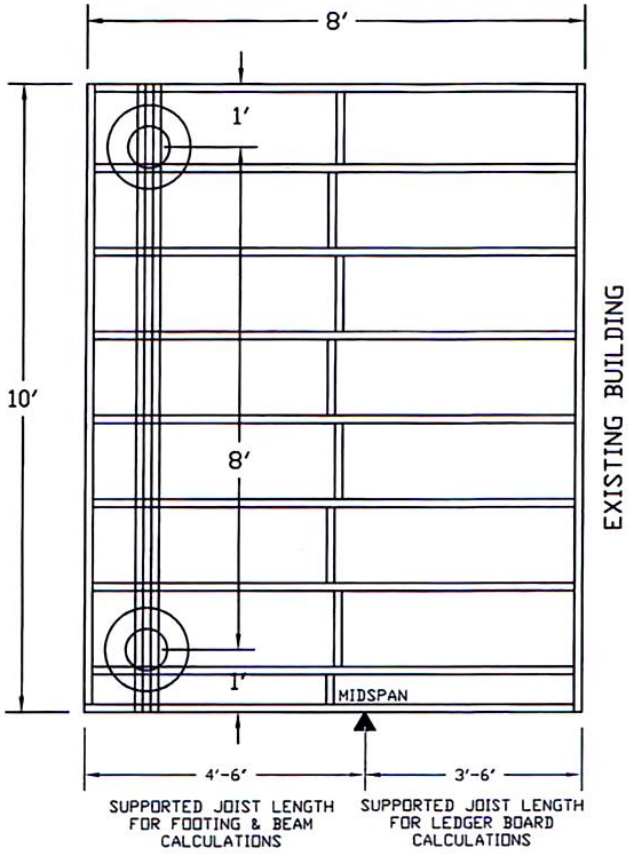
Sample Site Plan

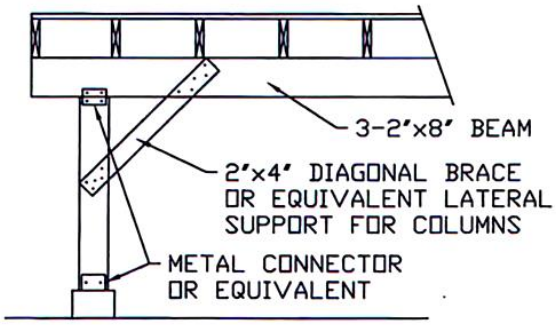


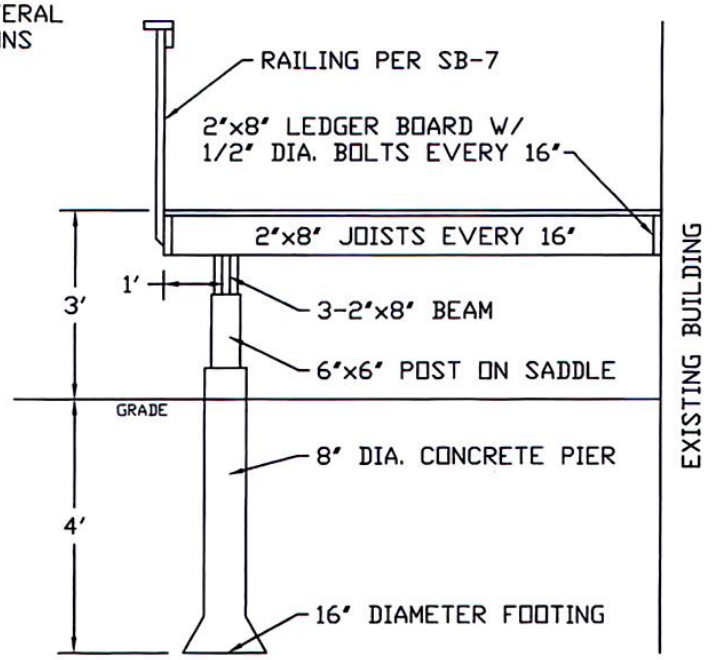
EXAMPLE DRAWING

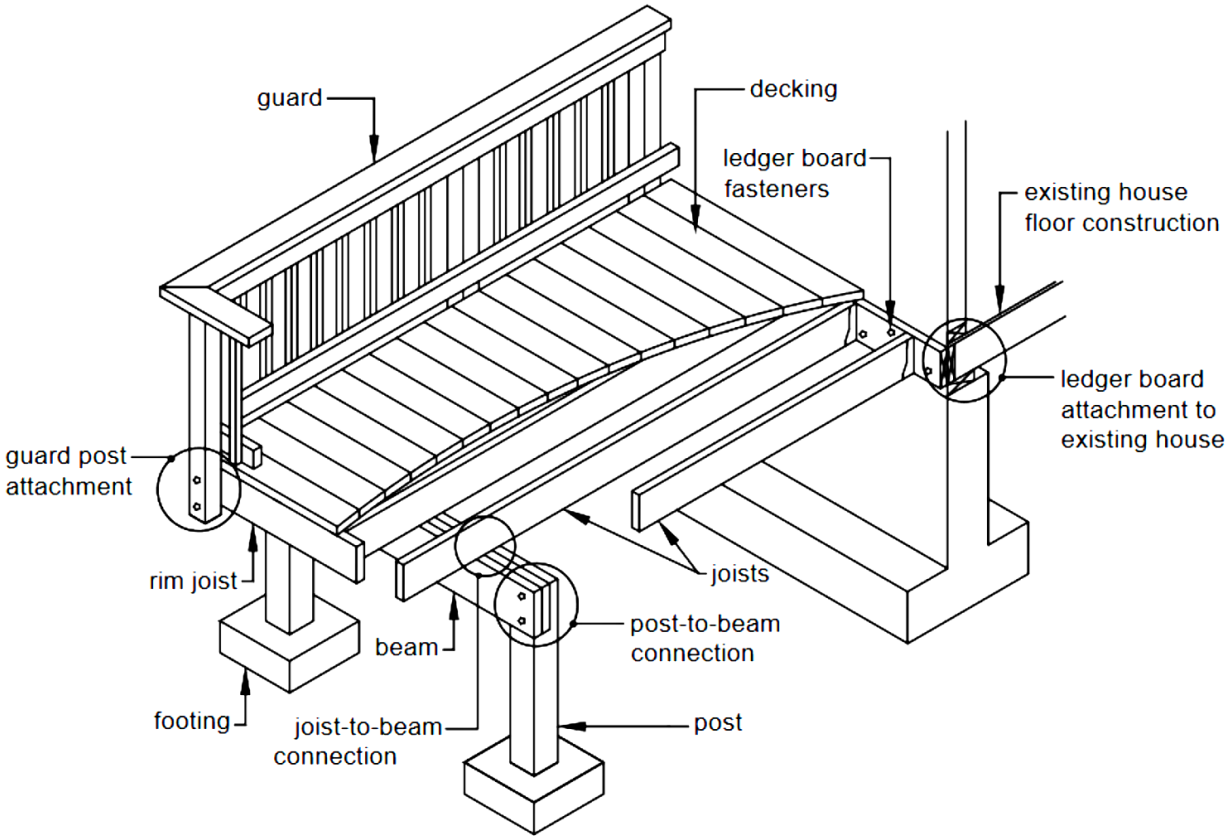
-THIS EXAMPLE DRAWING CONTAINS THE MINIMUM REQUIRED INFORMATION FOR BUILDING PERMIT SUBMISSION.

-THIS DRAWING IS AN EXAMPLE ONLY AND ALL SUBMISSIONS MUST CONFORM TO THE CURRENT VERSION OF THE ONTARIO BUILDING CODE.

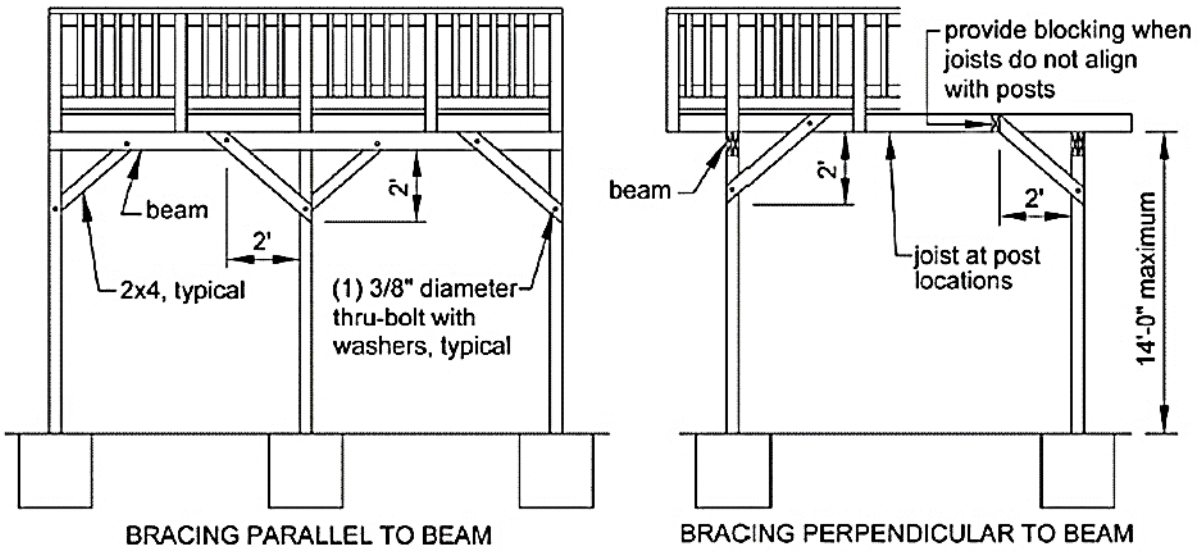








Sample Deck Elevation and Lateral Support For Heights Exceeding 6 Feet



American Wood Council

Piers & Footings

Concrete piers used shall be not less than 10" in diameter.

Minimum Footing Size Table 9.15.3.4.
0.40 m^2 (4.3 $ft.^2$) Where; the supported joist length is 4.90 m (16'), the pier spacing is 3 m (10'), and the soil bearing capacity is 75 kPa (10.9 psi).
Minimum size specified may be adjusted based on the specific supported joist length, pier spacing, and soil bearing capacity. See chart below for typical bearing areas.

Note: The minimum required bearing area must be doubled where the water table is less than the width of the footings below the bearing surface.

Minimum Required Bearing Area [ft^2] **Footing Thickness = footing width minus pier width divided by 2 (manufactured footing forms excepted)**							
75kPa Soil Bearing Capacity		**Beam Length / Pier Spacing (ft)**					
		4'	**6'**	**8'**	**10'**	**12'**	**14'**
Supported Joist Length (ft) (Refer to Illustration)	**4'**	0.43 ft^2 (10" Ø or 8"x8")	0.65 ft^2 (12" Ø or 10"x10")	0.86 ft^2 (14" Ø or 12"x12")	1.08 ft^2 (14" Ø or 13"x13")	1.29 ft^2 (16" Ø or 14"x14")	1.51 ft^2 (18" Ø or 15"x15")
	6'	0.65 ft^2 (12" Ø or 10"x10")	0.97 ft^2 (14" Ø or 12"x12")	1.29 ft^2 (16" Ø or 14"x14")	1.61 ft^2 (18" Ø or 16"x16")	1.94 ft^2 (20" Ø or 17"x17")	2.26 ft^2 (22" Ø or 19"x19")
	8'	0.86 ft^2 (14" Ø or 8"x8")	1.29 ft^2 (16" Ø or 14"x14")	1.72 ft^2 (18" Ø or 16"x16")	2.15 ft^2 (20" Ø or 18"x18")	2.58 ft^2 (22" Ø or 20"x20")	3.01 ft^2 (24" Ø or 21"x21")
	10'	1.08 ft^2 (14" Ø or 13"x13")	1.61 ft^2 (18" Ø or 16"x16")	2.15 ft^2 (20" Ø or 18"x18")	2.69 ft^2 (24" Ø or 20"x20")	3.23 ft^2 (25" Ø or 22"x22")	3.76 ft^2 (27" Ø or 24"x24")
	12'	1.29 ft^2 (16" Ø or 14"x14")	1.94 ft^2 (20" Ø or 17"x17")	2.58 ft^2 (22" Ø or 20"x20")	2.82 ft^2 (24" Ø or 21"x21")	3.87 ft^2 (27" Ø or 24"x24")	4.52 ft^2 (29" Ø or 26"x26")
	14'	1.51 ft^2 (18" Ø or 15"x15")	2.26 ft^2 (22" Ø or 18"x18")	3.01 ft^2 (24" Ø or 21"x21")	3.76 ft^2 (27" Ø or 24"x24")	4.52 ft^2 (29" Ø or 26"x26")	5.27 ft^2 (32" Ø or 28"x28")
	16'	1.72 ft^2 (18" Ø or 16"x16")	2.58 ft^2 (22" Ø or 20"x20")	3.44 ft^2 (25" Ø or 23"x23")	4.30 ft^2 (28" Ø or 25"x25")	5.16 ft^2 (31" Ø or 28"x28")	6.02 ft^2 (34" Ø or 30"x30")

Strength: 9.3.1.6.(1)
-Piers shall consist of poured concrete with a minimum compressive strength of 15 mpa (2,200 psi after 28 days)

Depth: 9.12.2.2.
-Where a deck is attached to a dwelling unit or requires a guard the piers must extend a minimum of 1.2m (3'-11") below grade.

Height: 9.15.2.3.(3), 9.35.3.4 (1) (2)
-Piers shall not extend more than 3 times their width above grade.
-Piers shall extend a minimum of 150 mm (6") above grade.

Columns

Size: 9.17.4.1.(2)
-Wood columns shall be not less than 184 mm (7-1/4”) for round columns and 140 x 140 mm (5-1/2” x 5- 1/2”) for rectangular columns.

Anchorage: 9.23.6.2.
-Columns shall be directly fastened to their supporting and supported members to resist uplift.

Ledger Board

Size and Attachment: 9.20.17.5
-A Ledger Board shall have the same dimensions as the floor joists it supports.
-Anchor Bolts shall be embedded at least 100mm (4”) into solid concrete, concrete filled masonry, or suitable structural lumber. **NOTE:** The anchor bolts shall **not** be attached to hollow masonry or brick veneer. Bolts must **pass through** hollow masonry or brick veneer and care must be taken to not overtighten bolts. If possible, spacers shall be placed in the air space.

Supported Length, m (ft)	Maximum Anchor Bolt Spacing, mm (in)	
	Staggered 12.7mm (1/2”) Ø Anchor Bolts	Staggered 16mm (5/8”) Ø Anchor Bolts
1.22 (4’-0”)	450 (17-3/4”)	500 (20”)
1.50 (4’-9”)	400 (16”)	450 (17-3/4”)
2.00 (6’-6”)	300 (12”)	400 (16”)
2.50 (8’-2”)	275 (11”)	325 (12-3/4”)

Beams

Spans 9.23.4.2.(3) Table A-8

	Maximum Span (m)		
Supported Length (m) ([1])	3-38x184 (3-2”x8”)	3-38x235 (3-2”x10”)	3-38x286 (3-2”x12”)
2.40 (7.87’)	3.07 (10’-0”)	3.92 (12’-10”)	4.57 (14’-11”)
3.00 (9.84’)	2.85 (9’-4”)	3.52 (11’-6”)	4.09 (13’-5”)
3.60 (11.8’)	2.63 (8’-7”)	3.22 (10’-6”)	3.73 (12’-2”)
4.20 (13.7’)	2.44 (8’-0”)	2.98 (9’-9”)	3.46 (11’-4”)
4.80 (15.7’)	2.28 (7’-5”)	2.79 (9’-1”)	3.23 (10’-7”)
5.40 (17.7’)	2.15 (7’-0”)	2.63 (8’-7”)	3.05 (10’-0”)
6.00 (19.6’)	2.04 (6’-8”)	2.49 (8’-2”)	2.89 (9’-5”)

([1]) Supported length means half the sum of the joists spans on both sides of the beam.
*Spruce-Pine-Fir No.1 or No.2 Grade

Bearing: 9.17.4.1. & 9.23.8.1.
-Beams shall a bearing surface on each of their supporting member of not less than their width and not less than 89 (3.5”) in length.

Built-up wood: 9.23.8.3.
-Where individual members are butted together to form a joint, the joint shall occur over a support.
-Built up beams shall be nailed together with a double row of nails not less than 89 (3.5”) in length, not more than 450 (18”) apart, and not more than 100 (4”) from the end.

Joists - Size & Spacing: 9.23.4.2.(1) & Table A-1

	Maximum Span m (ft. & in)		
Joist Size	**300 (12) o.c.**	**400 (16") o.c.**	**600 (24") o.c.**
38x140 (2"x6")	3.14 (10'-3")	2.85 (9'-4")	2.49 (8'-2")
38x184 (2"x8")	3.81 (12'-6")	3.58 (11'-9")	3.27 (10'-8")
38x235 (2"x10")	4.44 (14'-6")	4.17 (13'-8")	3.92 (12'-10")
38x286 (2"x12")	5.01 (16'-5")	4.71 (15'-5")	4.42 (14'-6")

*Spruce-Pine-Fir No.1 or No.2 Grade with Bridging
*The use of floor joists less than 38x184 (2"x8") is not allowed with wood railings.

Cantilever: 9.23.9.9.
-38x184 (2"x8") may not be cantilevered more than 400 (16")
-38x235 (2"x10") or larger may not be cantilevered more than 600 (24")

Bearing: 9.23.9.1. – 9.23.9.3., 9.23.3.4.(1)
-Floor joists may be supported on the tops of beams or may be supported with proper metal joist hangers.
-The floor joists must be mechanically fastened to the supporting member with two 82 (3-1/4") nails.

Bridging: 9.23.9.4.(2), 9.23.3.4.(1)
-Bridging shall consist of 19 x 64 (1"x3") cross bridging, 38 x 38 (2"x2") cross bridging or solid blocking the same dimension as the supported floor joists.
-Bridging shall be located not more than 2100 (6'-11") from each support or other rows of bridging.
-Bridging shall be fastened with two 57 (2-1/4") nails at each end.

Decking
Requirements:
-Decking shall consist of solid lumber at least 25.4 mm (1") thick when joists are spaced 400mm (16") or less and at least 38 mm (1 ½"") when joists are spaced 600mm (24"). When decking is installed at an angle, joist spacing shall be reduced from 400mm (16") to 300mm (12") and from 600mm (24") to 400mm (16").

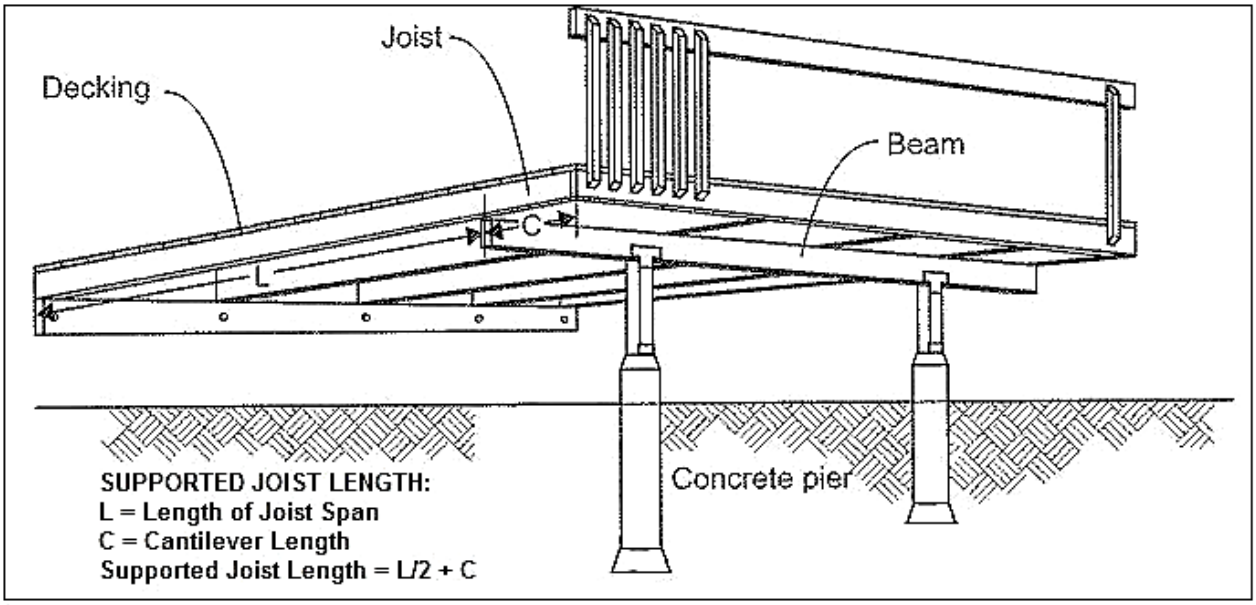
Fasteners
-All fasteners used must be properly treated/coated to prevent corrosion.
-Equivalent structural screws may be used in lieu of nails. "Deck screws" or "contractor screws may not be used for structural components.

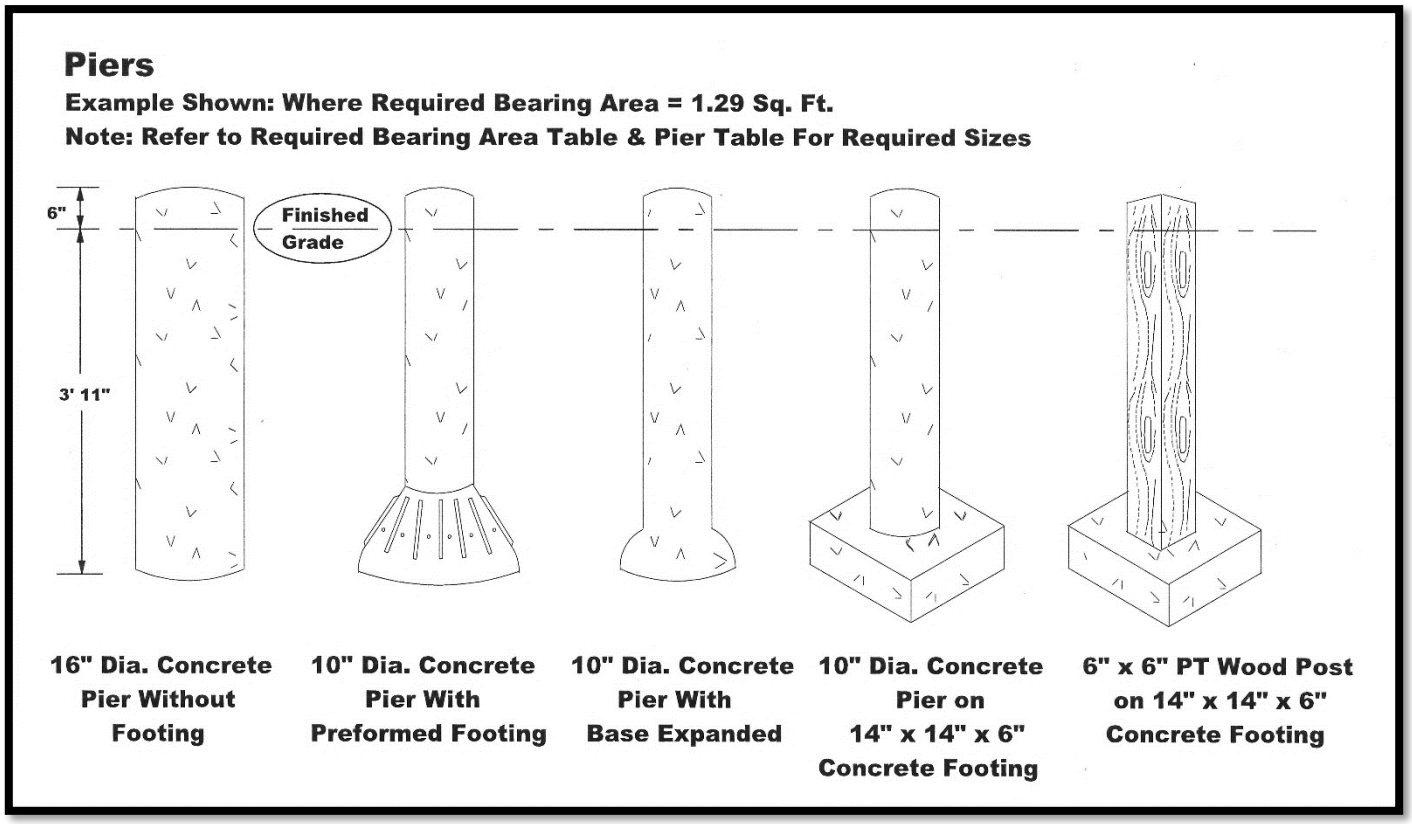
Stairs
Stairs shall conform to section 9.8 of the Ontario Building Code.

Railing
Railings shall conform to Supplementary Standard SB-7 of the Ontario Building Code
(see explanations and drawings on pages 17 - 39 in this brochure)

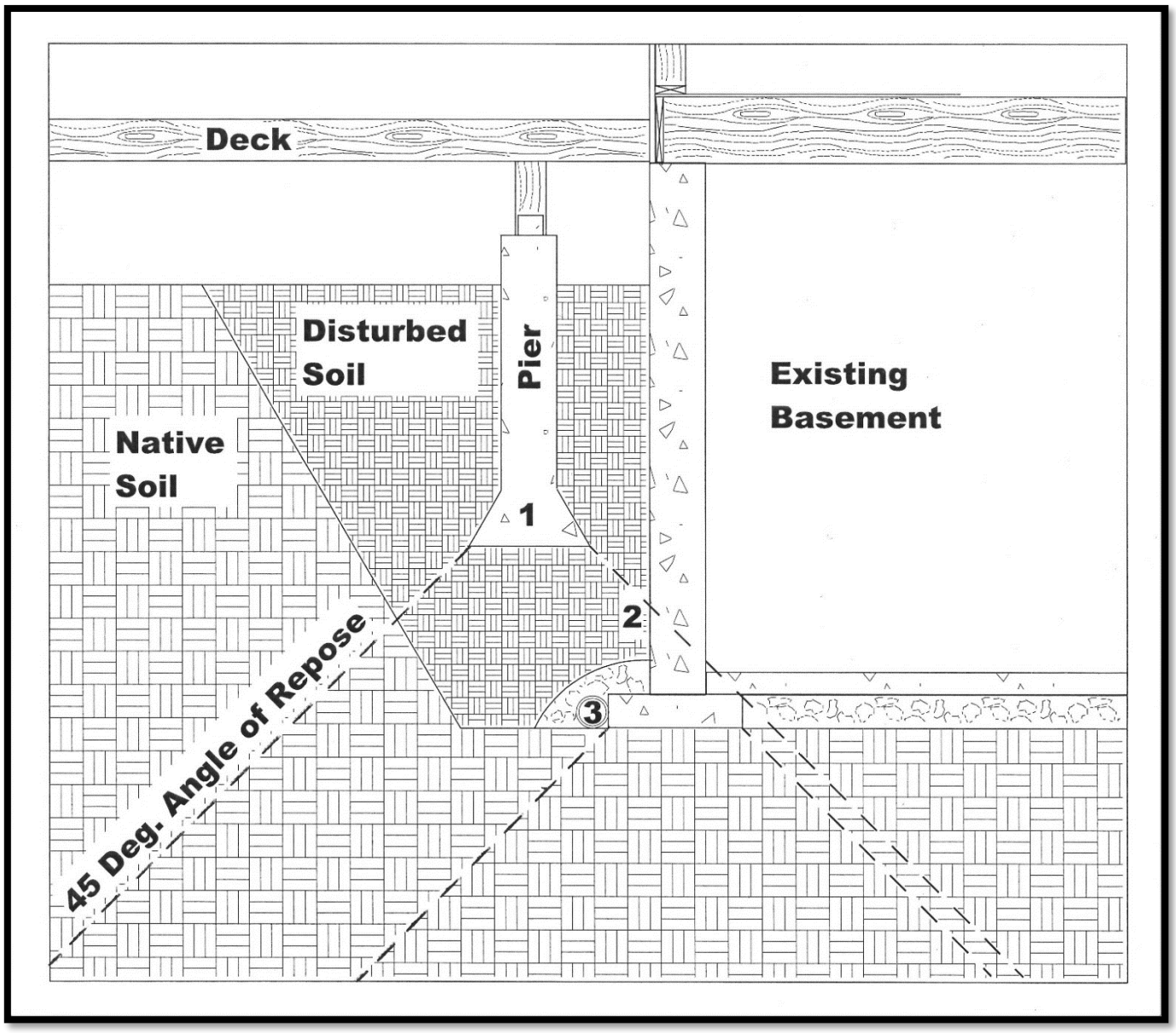
Illustrations

FROM THE “CODE AND CONSTRUCTION - GUIDE FOR HOUSING”





Unacceptable Pier Installation



1) **Foundations must rest on undisturbed native soil**

2) **Foundations within the angle of repose (45^0) require the services of a Professional Engineer or must be at the same depth as the existing foundation and on undisturbed soil.**

3) **New foundations must not interfere with existing foundation drainage systems.**

Built Up Beam Nailing

1.

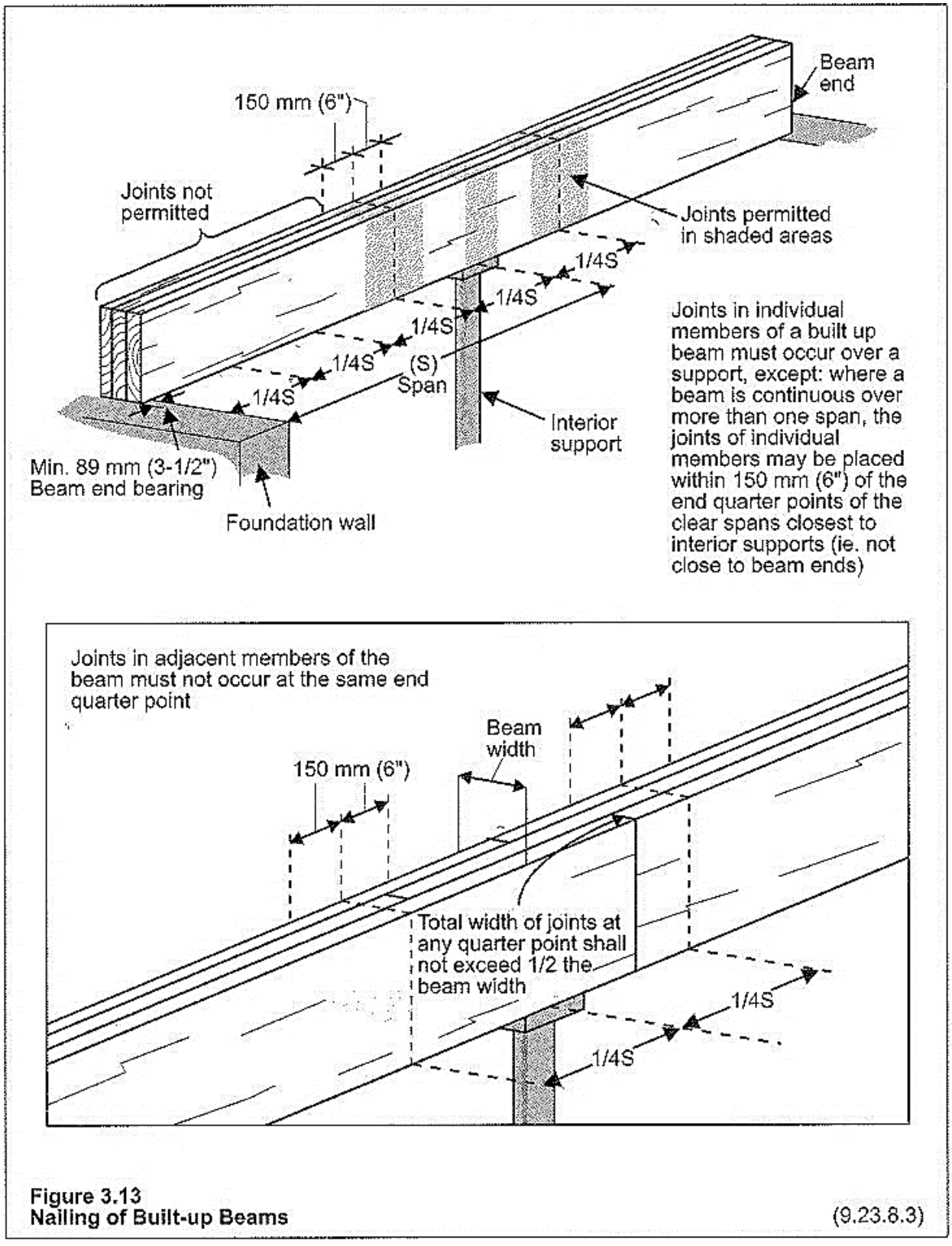


Figure 3.13
Nailing of Built-up Beams (9.23.8.3)

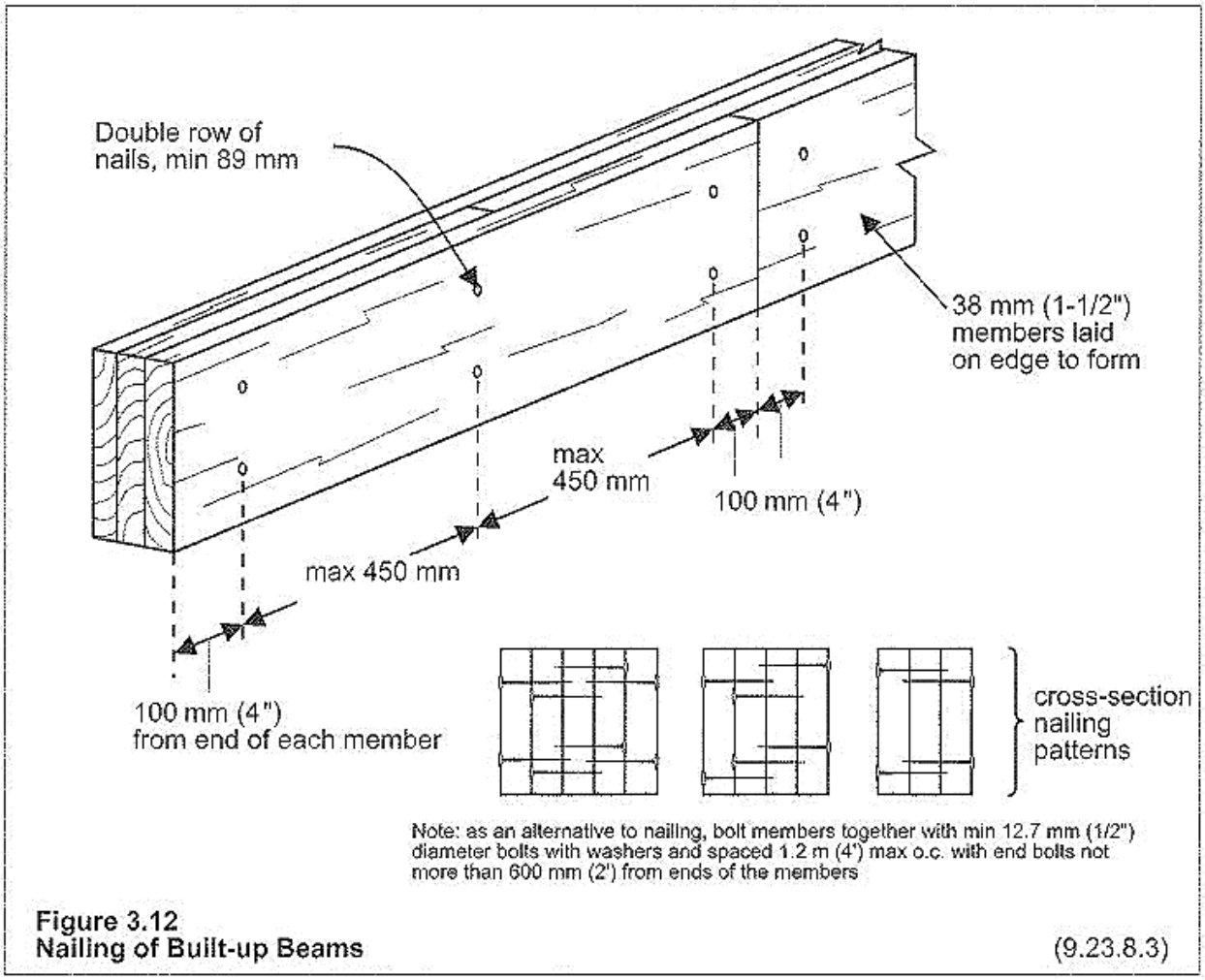
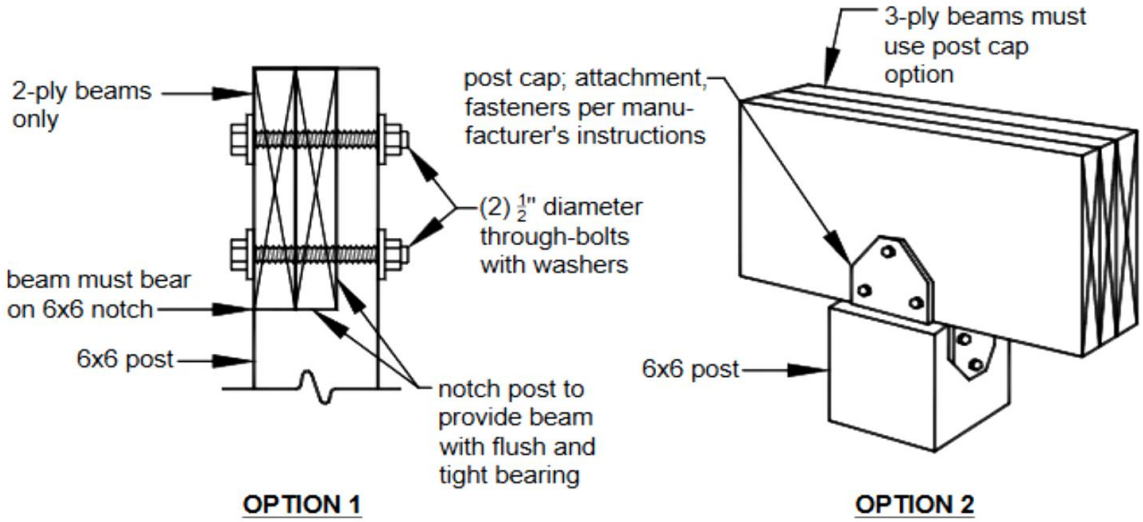
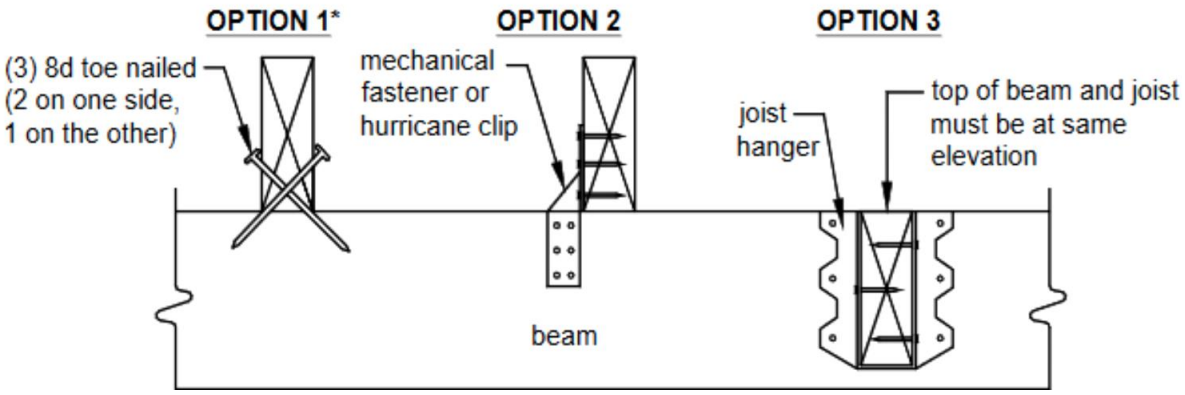


Figure 3.12
Nailing of Built-up Beams (9.23.8.3)

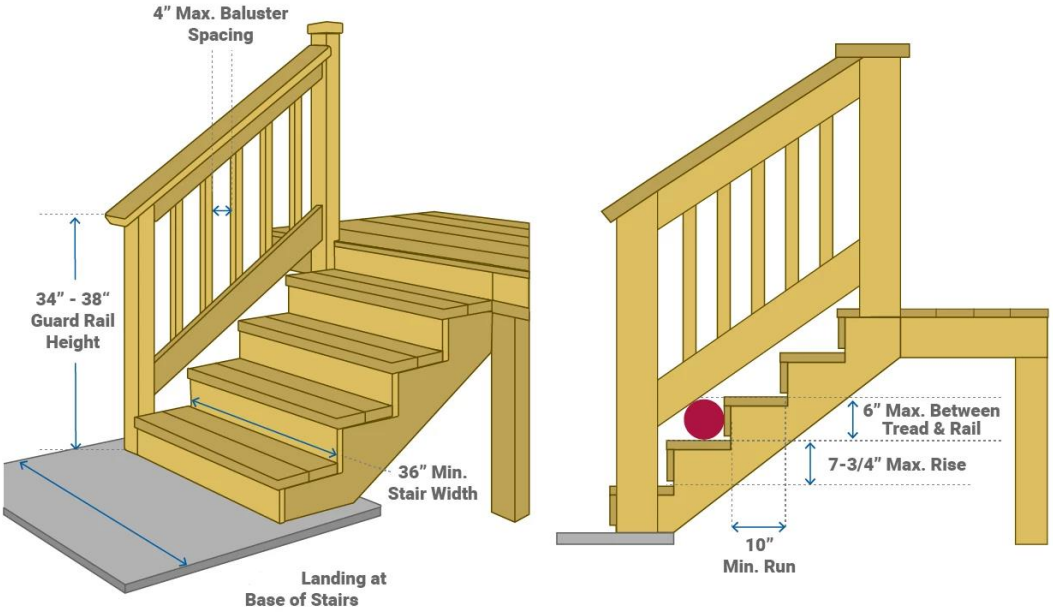
Post to Beam Connection



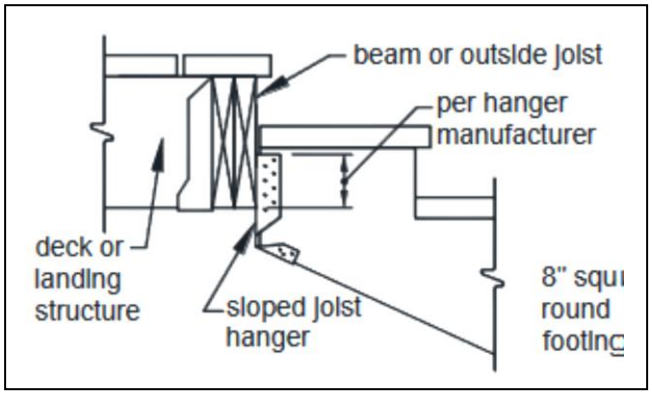
Connection of Floor Joist to Beam



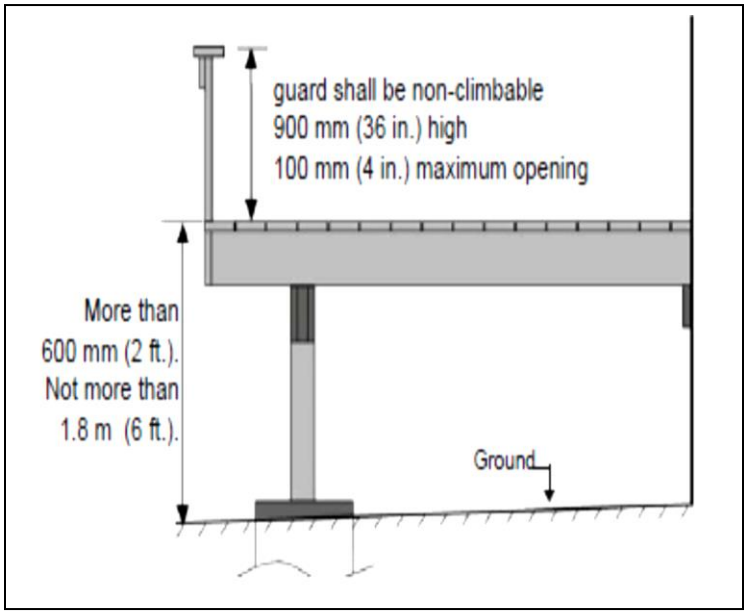
Stair Requirements

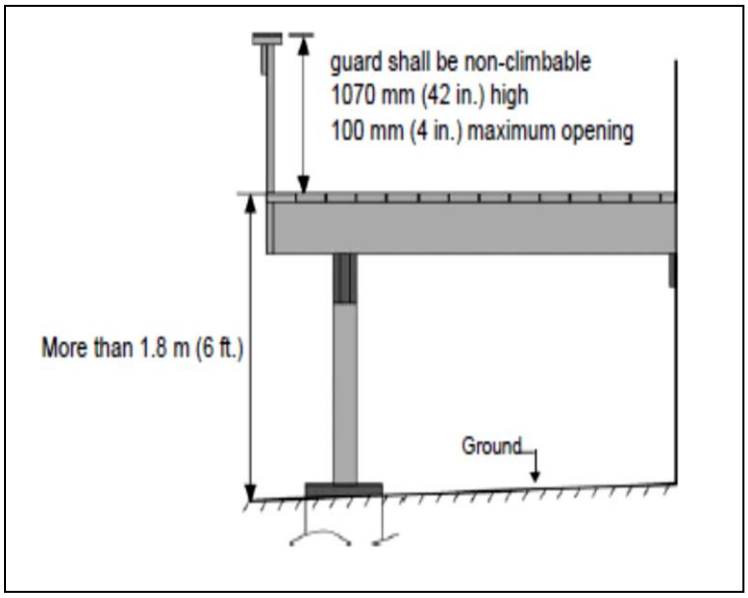


One method of attachment



Required Guards





The OBC requires that guards be installed on walking surfaces on each side that is not protected by a wall where [9.8.8.1(1)]:

- there is a difference in elevation of **more than 23 5/8”** between the walking surface and the adjacent surface, or
- the adjacent surface within 3’-11” from the walking surface has a slope of more than 1/12.

The OBC requires that an exterior guard shall be [9.8.8.3]:

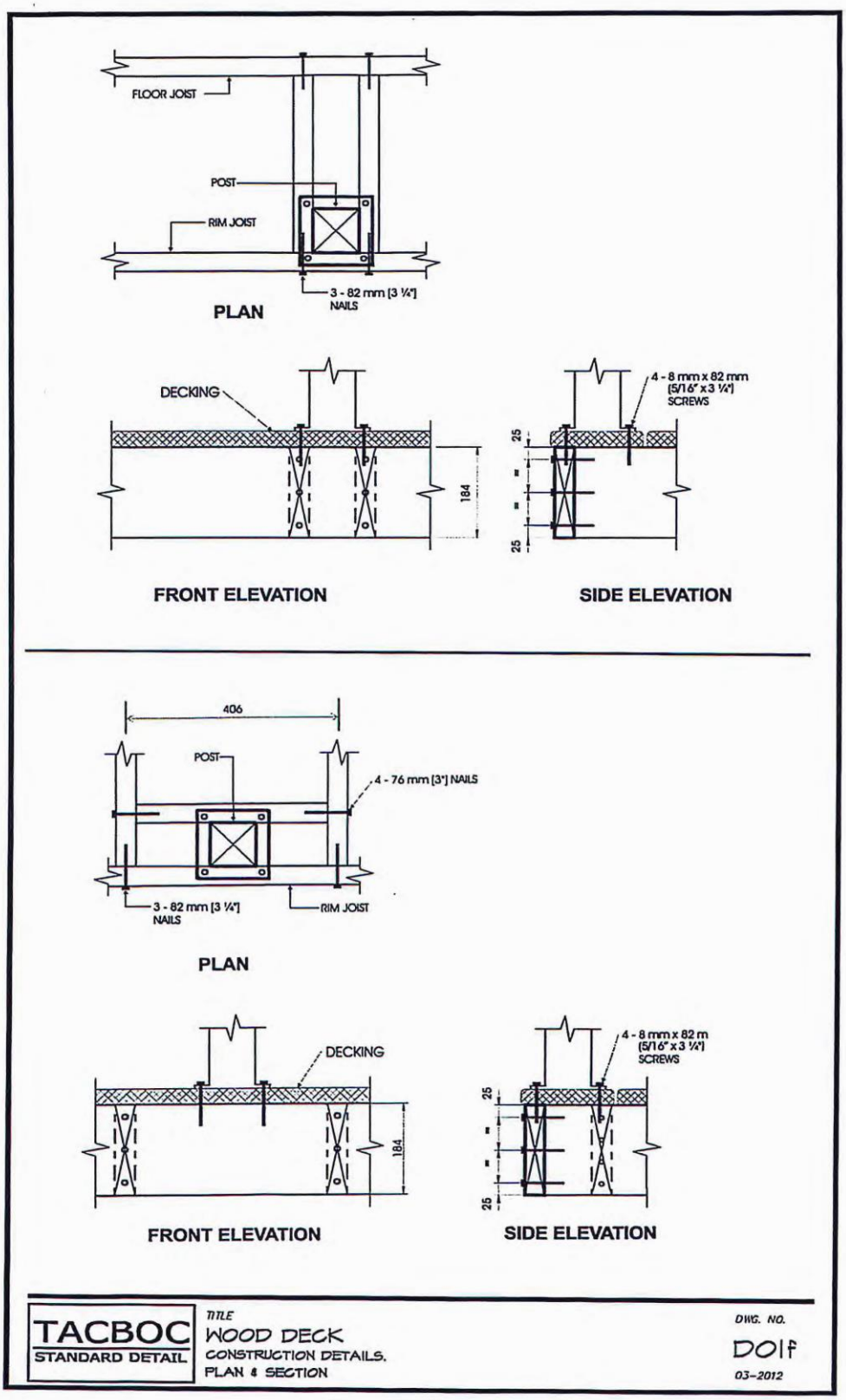
- not less than 36” high where the walking surface served by the guard ***is not more than 5’-11” above finished ground level***
- not less than 36” high for guards installed on flights of steps, where the height of a guard on a flight of steps is measured vertically from a line drawn through the leading edge of the treads served by the guard, and
- **not less than 3’-6” in all other situations**

The OBC also requires that guards be constructed so that [9.8.8.5 & 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 4”, and
- no member, attachment or opening will facilitate climbing

Note: If a bench is incorporated into a guard, the required height is measured from the bench surface to the top of the Guard.

Typical Attachment for Manufactured Railings
See Manufacturer's Specifications



A Guide to Using Supplementary Standards SB-7

Guards for Residential Decks

Supplementary Standard SB-7 of the Ontario Building Code illustrates acceptable designs for guards.

There are two acceptable designs for residential decks:

Post and Rail System (Table 2.2.1)
Cantilevered Picket System (Table 2.2.2)

If a professionally engineered guard is proposed, documentation with an engineer's stamp may be required.

To construct the **Post and Rail System** according to SB-7, follow these steps:

1. Select a Top Rail/Bottom Rail connection (Details EA-1 to EA-5)
2. Select a Post to Floor system (Details EB-1 to EB-6)
3. Select a Picket connection (Details EC-1 to EC-4)

To construct the **Cantilever System** according to SB-7, follow these steps:

1. Select a connection detail (Details ED-1, ED-2 or ED-5 for SPF). (Details ED-3 or ED-4 for Cedar)

2.1.1. Lumber Dimensions

Table 2.1.2.
Minimum Size of Loadbearing Elements

Guard Element	Minimum Size, mm (in)
Post	89 x 89 (4" x 4" nominal)
Top Rail	38 x 89 (2" x 4" nominal)
Bottom Rail	38 x 89 (2" x 4" nominal)
Picket/ Baluster	32 x 32 (1 9/32" x 1 9/32")
Column 1	2

Table 2.1.3.
Minimum Size of Floor Elements

Floor	Minimum size, mm (in)
Dimension Lumber Decking	25 x 140 (5/4" x 6" nominal), when each plank is fastened with 2 - 63 mm (2 ½") nails
	38 x 89 (2" x 4" nominal), when each plank is fastened with 2 - 76 mm (3") nails
Dimension Lumber Joists	38 x 184 (2" x 8" nominal)
Column 1	2

2.1.2. **Connectors** (See Appendix A.)

(1) Nails, screws, lag bolts and machine bolts shall not cause splitting of wood elements.

(2) Fasteners shall be resistant to corrosion.

(3) All nails shall be common spiral.

(See also A-2.1.4. in Appendix A. for glued joints.)

2.1.3. **Decay-Resistant Lumber** (See Appendix A.)

(1) Lumber for guard systems and floor systems shall be
a) A species resistant to decay,
b) Preservative treated to prevent decay, or
c) Pressure treated.

(2) All cut ends of preservative treated lumber shall be treated to prevent decay.

2..2. **Structural Details**

2.2.1. **Post and Rail System**

(1) An exterior guard constructed as a Post and Rail System shall conform to the applicable connection details listed in Table 2.2.1.

2.2.2. **Cantilevered Picket System**

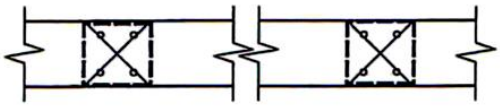
(1) An exterior guard constructed as a Cantilevered Picket System shall conform to the applicable connection details listed in Table 2.2.2.

Table 2.2.1.
Exterior Post and Rail System Connection Details

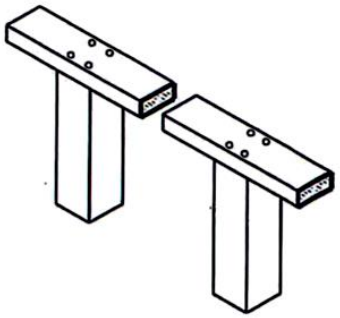
Connection Detail	Detail	Description
Top Rail to Post and/or Bottom Rail to Post	EA-1	Top rail nailed to post
	EA-2	Top/bottom rail skew nailed to post with 76 mm (3") nails
	EA-3	Top/bottom rail skew nailed to post with 63 mm (2 1/2") nails
	EA-4	Top/bottom rail face nailed or screwed to post
	EA-5	Top/bottom rail fastened to post with framing anchors
Post to Floor	EB-1	Post nailed to rim joist
	EB-2	Post screwed to rim joist
	EB-3	Post bolted to floor joist with 8 mm (5/16") machine bolts
	EB-4	Post bolted to floor joist with 9.5 mm (3/8") machine bolts
	EB-5	Post bolted to 2 floor joists
	EB-6	Post fastened to floor, where guard is parallel to floor joists
Infill Picket	EC-1	Picket nailed to endcap; endcap screwed to rail
	EC-2	Picket nailed to rail
	EC-3	Picket screwed to rail
	EC-4	Picket screwed to top rail and rim joist
Column 1	2	3

Table 2.2.2.
Exterior Cantilevered Picket System
Connection Details

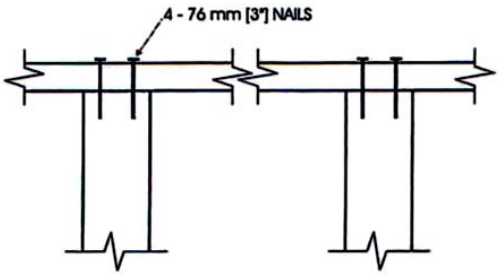
Connection Detail	Detail	Description
Cantilevered Picket (Douglas Fir-Larch, Spruce-Pine-Fir, Hem-Fir Species}	ED-1	Picket screwed to rim joist
	ED-2	Picket screwed to rim joist, where guard is parallel to floor joists
Cantilevered Picket (Northern Species}	ED-3	Picket screwed to rim joist and deck
	ED-4	Picket screwed to rim joist and deck, where guard is parallel to floor joists
Cantilevered Picket (Douglas Fir-Larch, Spruce-Pine-Fir, Hem-Fir Species, Northern Species)	ED-5	Corner
Column 1	2	3



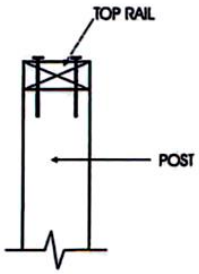
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

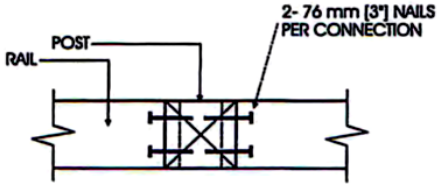
Detail EA-1

Exterior Connection: Top Rail Nailed to Post

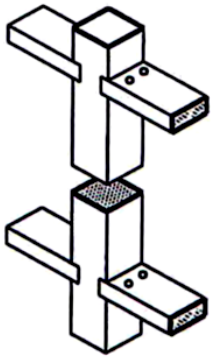
Notes:

1. The top rail must be continuous. Use Detail EA-5 at the end spans, where continuity ends.

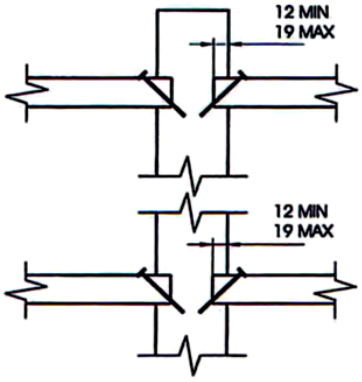
MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.52 (5'-0")
Northern Species	1.52 (5'-0")
Column 1	2



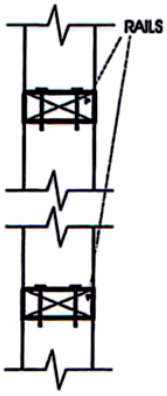
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

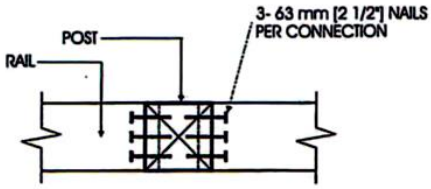
Detail EA-2

Exterior Connection: Top/Bottom Rail Skew Nailed to Post - 76 mm (3") Nails

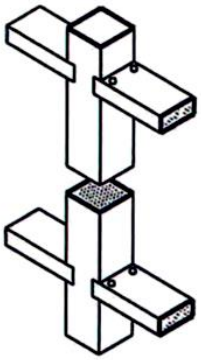
Notes:

1. The maximum span is more often governed by post spacing.
2. Provide support to bottom rail at intervals not more than 2.0 m (6'-7").
3. The bottom rail may be bevelled as detailed in Figure 2.1.2.
4. Dimensions shown are in mm unless otherwise specified.

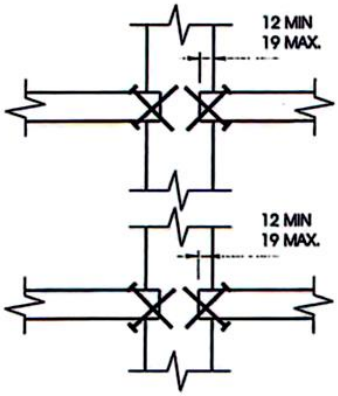
MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	2.72 (8'-11")
Northern Species	2.18 (7'-2")
Column 1	2



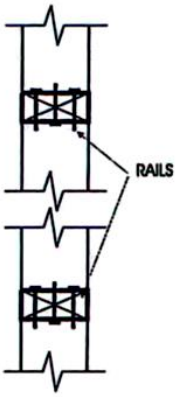
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

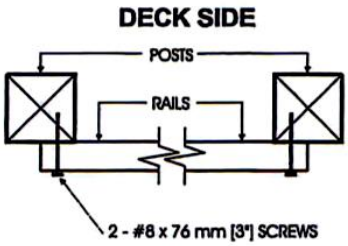
Detail EA-3

Exterior Connection: Top/Bottom Rail Skew Nailed to Post - 63 mm (2½") Nails

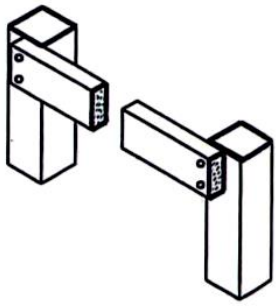
Notes:

1. Provide support to bottom rail at intervals not more than 2.0 m (6'-7").
2. The bottom rail may be bevelled as detailed in Figure 2.1.2.
3. Dimensions shown are in mm unless otherwise specified.

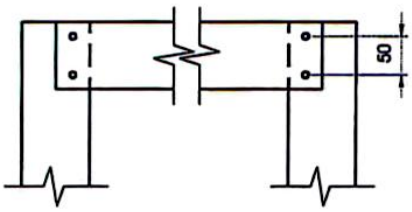
MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	2.72 (8'-11")
Northern Species	2.18 (7'-2")
Column 1	2



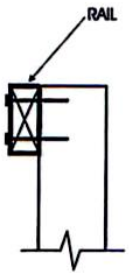
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

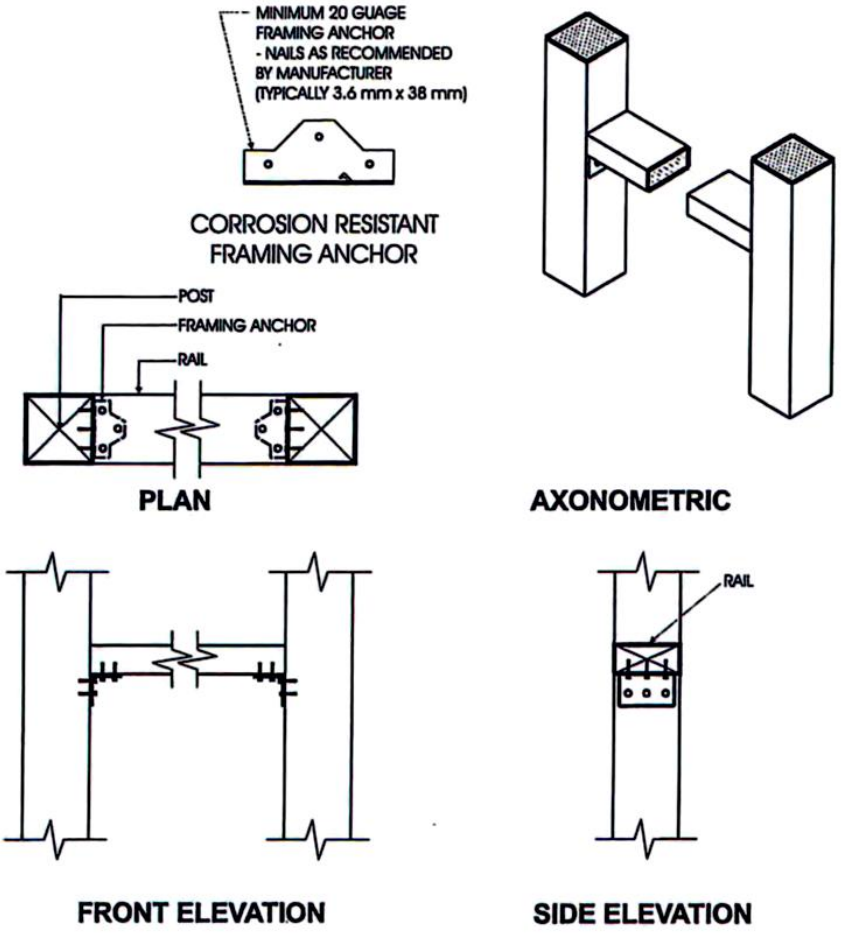
Detail EA-4

Exterior Connection: Top/Bottom Rail Face Nailed or Screwed to Post

Notes:

1. If the rails are located on the deck side of the posts, 76 mm (3") nails may be used in place of the screws.
2. Where the top rail is continuous, the top rail may be fastened to each post with 3 - #8 x 76 mm (3") screws.
3. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.77 (5'-10")
Northern Species	1.41 (4'-8")
Column 1	2



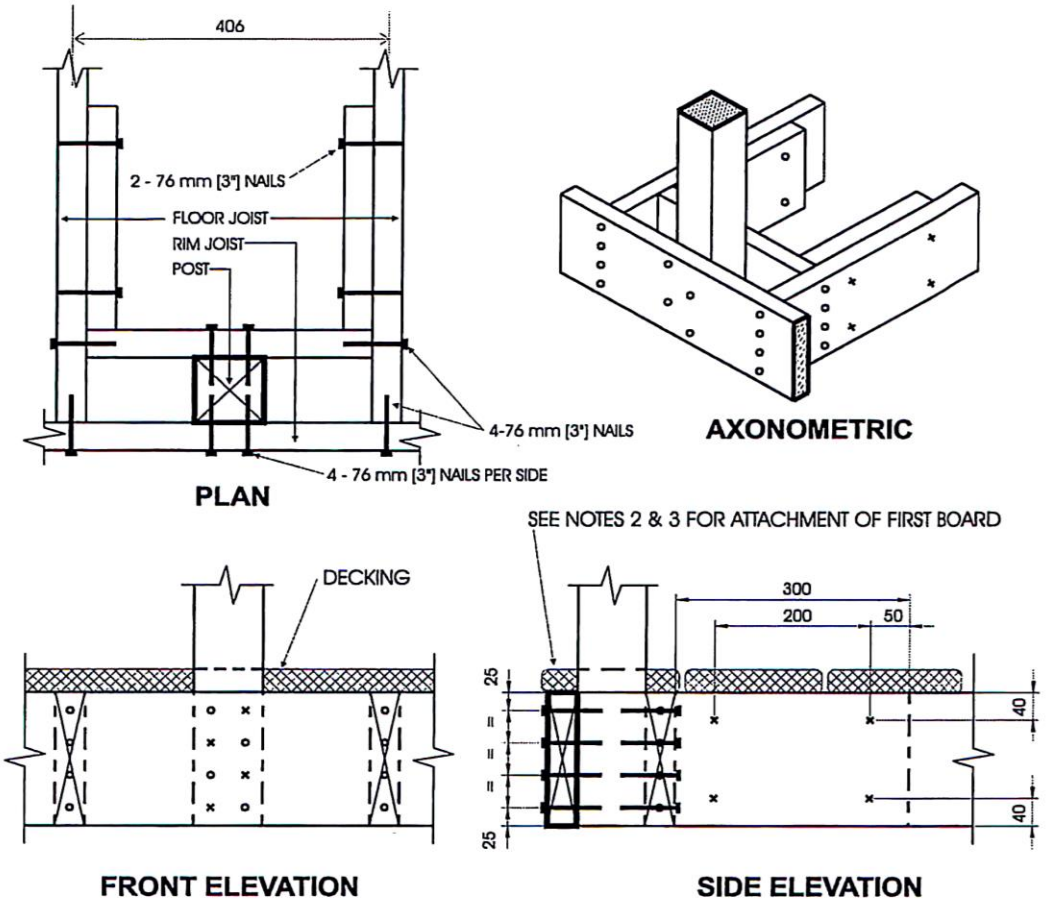
Detail EA-5

Exterior Connection: Top/Bottom Rail Fastened to Post with Framing Anchors

Notes:

1. Provide support to bottom rail at intervals not more than 2.0 m (6'-7").
2. The bottom rail may be bevelled as detailed in Figure 2.1.2.
3. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	2.72 (8'-11")
Northern Species	2.18 (7'-2")
Column 1	2



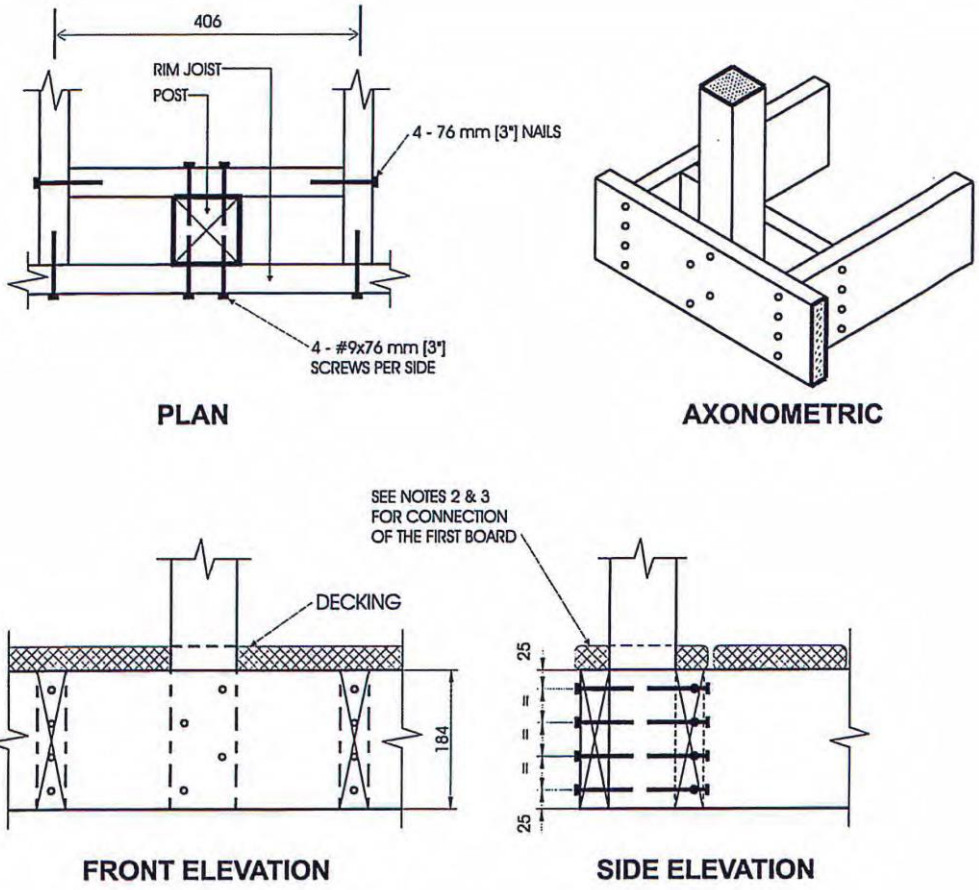
Detail EB-1

Exterior Connection: Post Nailed to Rim Joist

Notes:

1. Decking is omitted from the plan view and the axonometric view for clarity.
2. Fasten 25 mm x 140 mm (5/4" x 6" nominal) outer deck board to rim joist with 63 mm (2½") nails at 300 mm (12").
3. Fasten 25 mm x 140 mm (5/4" x 6" nominal) outer deck board to floor joist with 1 - 63 mm (2½") nail at each joist.
4. The post may be positioned anywhere between the joists.
5. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.22 (4'-0")
Northern Species	1.20 (3'-11")
Column 1	2



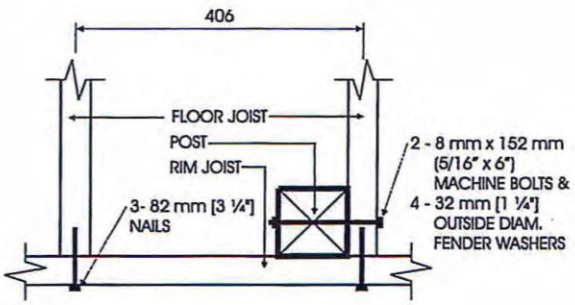
Detail EB-2

Exterior Connection: Post Screwed to Rim Joist

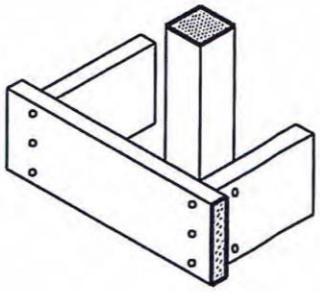
Notes:

1. Decking is omitted from the plan view and the axonometric view for clarity.
2. Fasten 25 mm x 140 mm (5/4" x 6" nominal) outer deck board to rim joist with 63 mm (2½") nails at 300 mm (12").
3. Fasten 25 mm x 140 mm (5/4" x 6" nominal) outer deck board to floor joist with 1 - 63 mm (2½") nail at each joist.
4. The post may be positioned anywhere between the joists.
5. #9 screws may be replaced by #8 screws if the maximum spacing between posts is not more than 1.20 m (3'-11").
6. Dimensions shown are in mm unless otherwise specified.

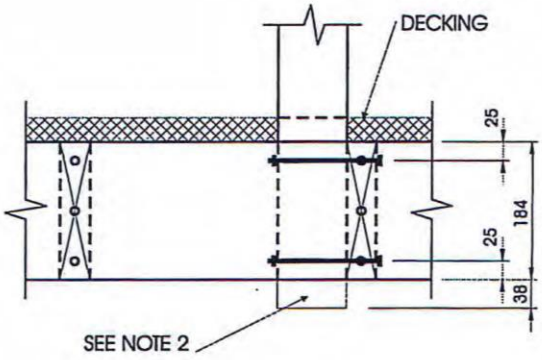
MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.56 (5'-1")
Northern Species	1.20 (3'-11")
Column 1	2



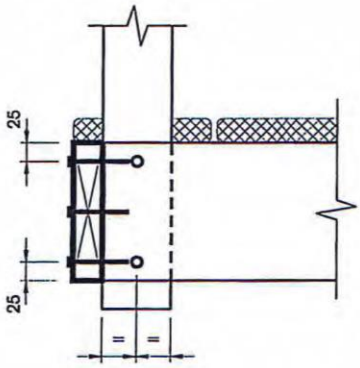
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

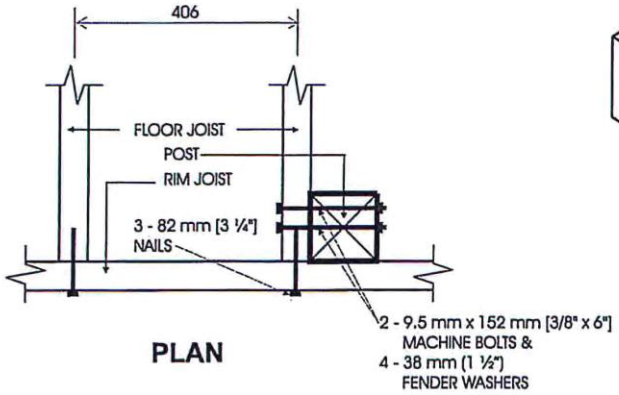
Detail EB-3

Exterior Connection: Post Bolted to Floor Joist - 8 mm (5/16") Bolts

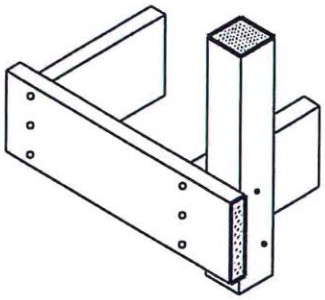
Notes:

1. Decking is omitted from the plan view and the axonometric view for clarity.
2. 38 mm (1½") post projection is not required where the maximum spacing between posts does not exceed 1.20 m (3'-11").
3. Joists may be spaced at 610 mm (24") o.c. or 406 mm (16") o.c.
4. Where floor joists are spaced at 610 mm (24") o.c., decking shall have a minimum thickness of 38 mm (1½") and shall be fastened to the floor with 2 - 76 mm (3") nails.
5. Dimensions shown are in mm unless otherwise specified.

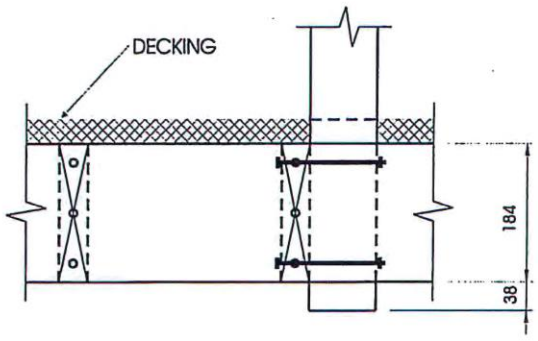
MAXIMUM SPACING BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.29 (4'-3")
Northern Species	1.20 (3'-11")
Column 1	2



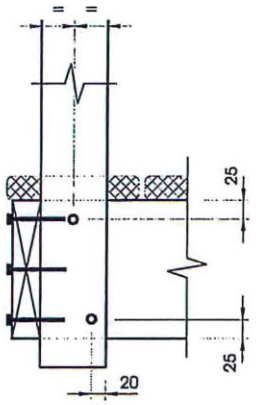
PLAN



AXONOMETRIC



FRONT ELEVATION



SIDE ELEVATION

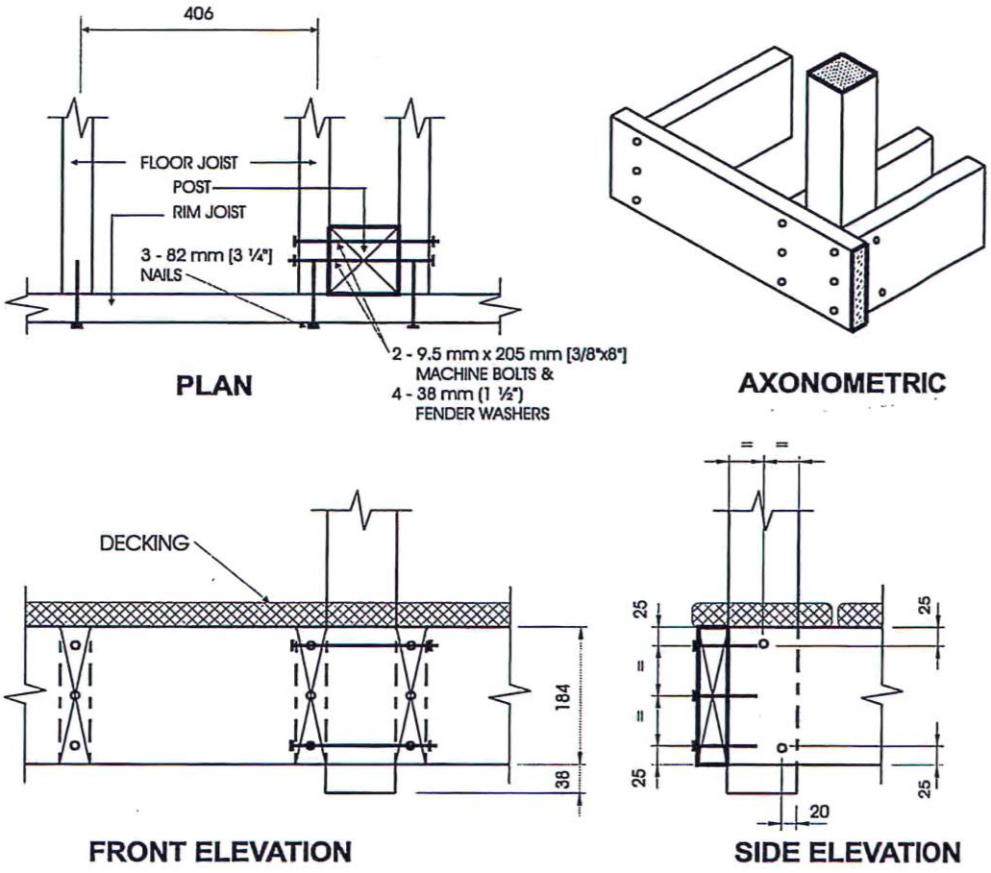
Detail EB-4

Exterior Connection: Post Bolted to Floor Joist - 9.5 mm (3/8") Bolts

Notes:

1. Decking is omitted from the plan view and the axonometric view for clarity.
2. 38 mm (1½") post projection is not required where the maximum spacing between posts does not exceed 1.20 m (3'-11").
3. Joists may be spaced at 610 mm (24") o.c. or 406 mm (16") o.c.
4. Where floor joists are spaced at 610 mm (24") o.c., decking shall have a minimum thickness of 38 mm (1½") and shall be fastened to the floor with 2 - 76 mm (3") nails.
5. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPACING BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.49 (4'-11")
Northern Species	1.20 (3'-11")
Column 1	2



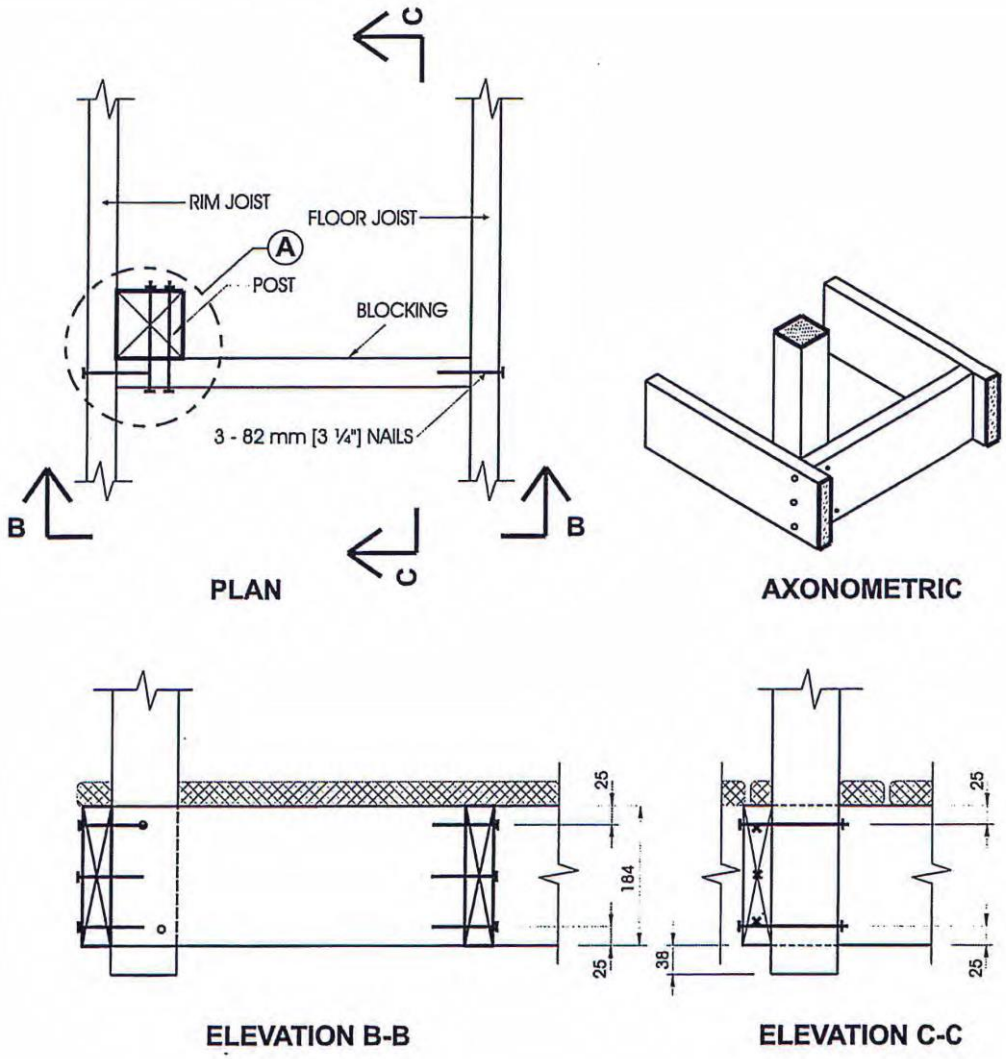
Detail EB-5

Exterior Connection: Post Bolted to 2 Floor Joists

Notes:

1. Decking is omitted from the plan view and the axonometric view for clarity.
2. 38 mm (1½") post projection is not required where the maximum spacing between posts does not exceed 1.20 m (3'-11").
3. Joists may be spaced at 610 mm (24") o.c. or 406 mm (16") o.c..
4. Where floor joists are spaced at 610 mm (24") o.c. decking shall have a minimum thickness of 38 mm (1½") and shall be fastened to the floor with 2 - 76 mm (3") nails.
5. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPACING BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	2.14 (7'-0")
Northern Species	1.20 (3'-11")
Column 1	2

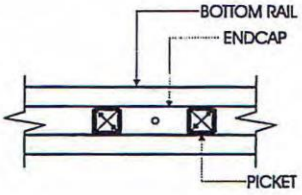


Detail EB-6

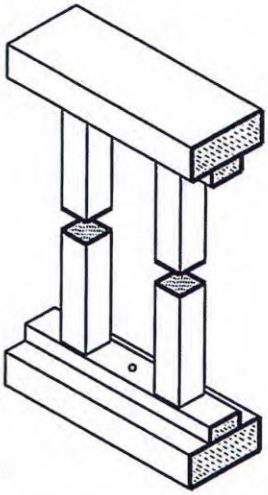
Exterior Connection: Post Fastened to Floor, Guard Parallel to Floor Joists

Notes:

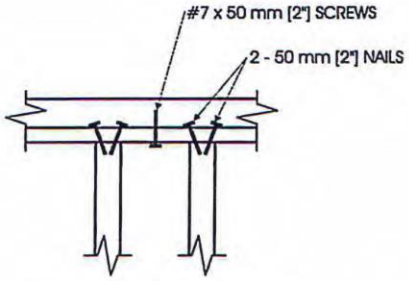
1. Use any of the connection details shown on Details EB-1 to EB-5 at location "A". Connection Detail EB-4 is shown in this detail, as an example.
2. Maximum spacing between posts is determined from connection detail used at location "A".
3. Decking is omitted from the plan view and the axonometric view for clarity.
4. Blocking shall be not less than 38 mm x 184 mm (2" x 8" nominal).
5. Dimensions shown are in mm unless otherwise specified.



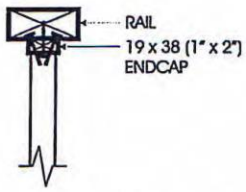
PLAN
BOTTOM RAIL



AXONOMETRIC



FRONT ELEVATION



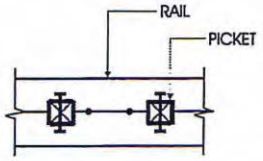
SIDE ELEVATION

Detail EC-1

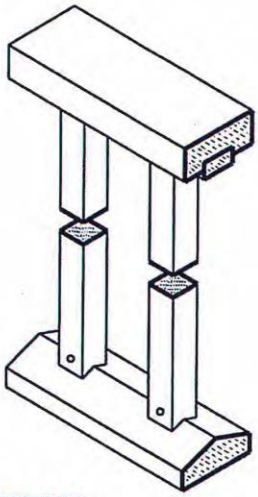
Exterior Connection: Infill Picket Nailed to Endcap - Endcap Screwed to Rail

Notes:

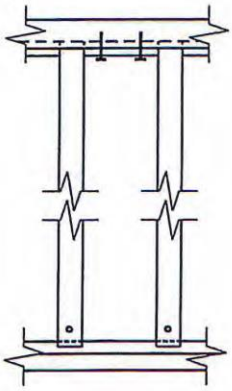
1. Fasten each end of each picket to endcaps with 2 - 50 mm (2") nails.
2. Fasten endcaps to rails with #7 x 50 mm (2") screws at 300 mm (12") o.c.
3. See Table 2.1.2. for minimum sizes of pickets.



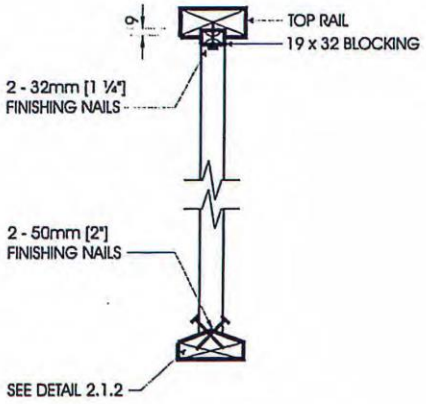
PLAN
BOTTOM RAIL



AXONOMETRIC



FRONT ELEVATION



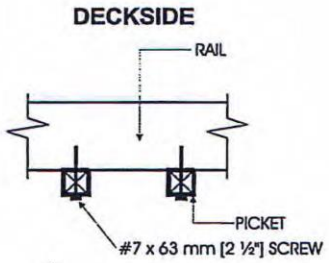
SIDE ELEVATION

Detail EC-2

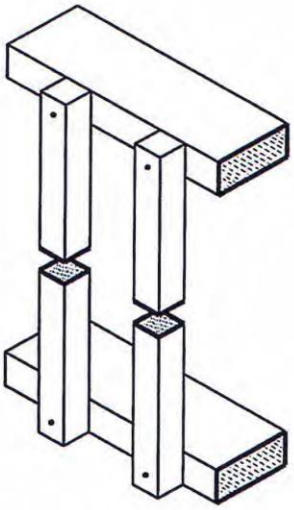
Exterior Connection: Infill Picket Nailed to Rail

Notes:

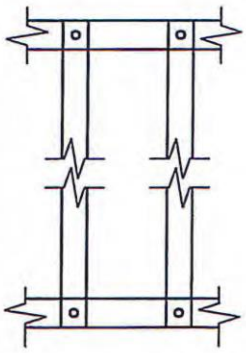
1. See Table 2.1.2. for minimum sizes of pickets.
2. Dimensions shown are in mm unless otherwise specified.



PLAN



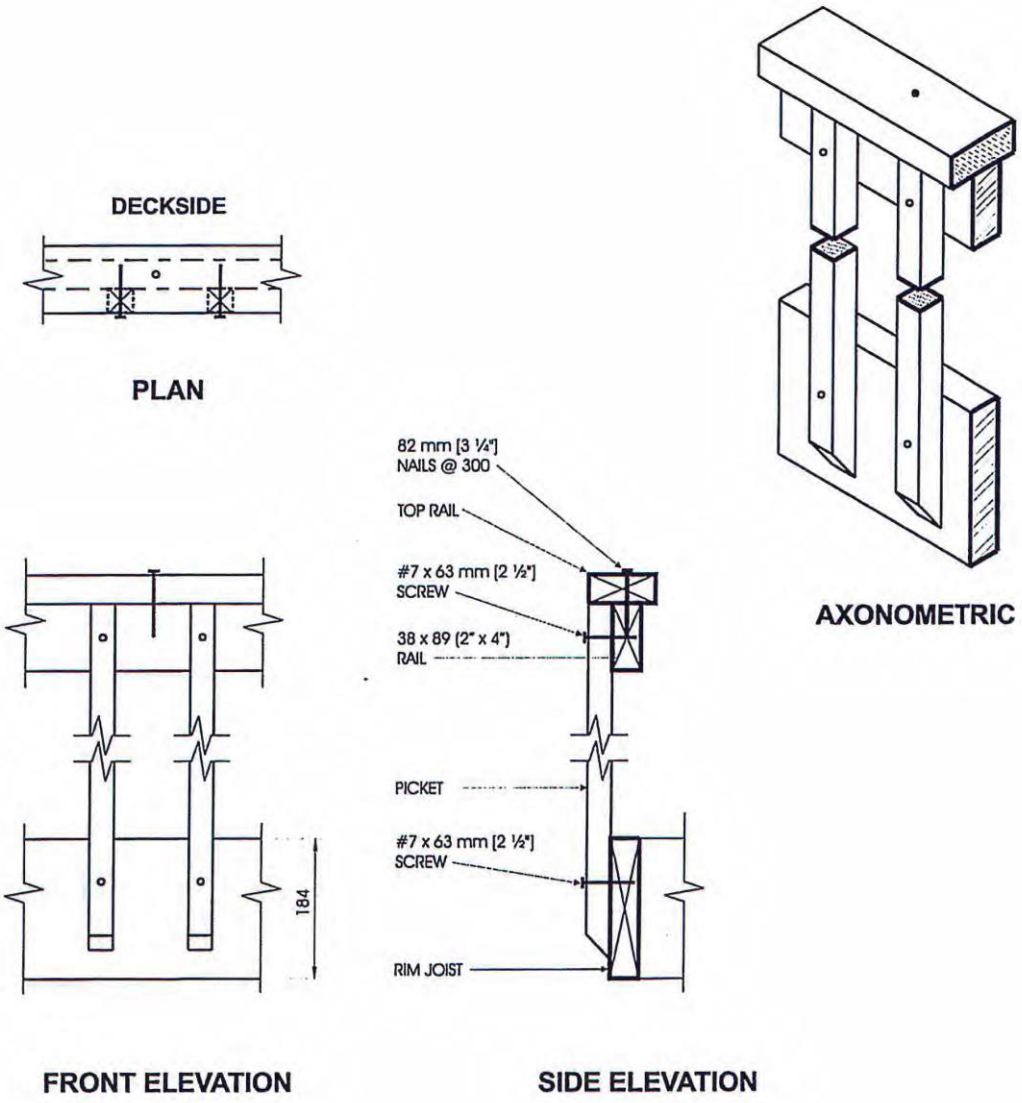
AXONOMETRIC



FRONT ELEVATION

SIDE ELEVATION

Detail EC-3
Exterior Connection: Infill Picket Screwed to Rail

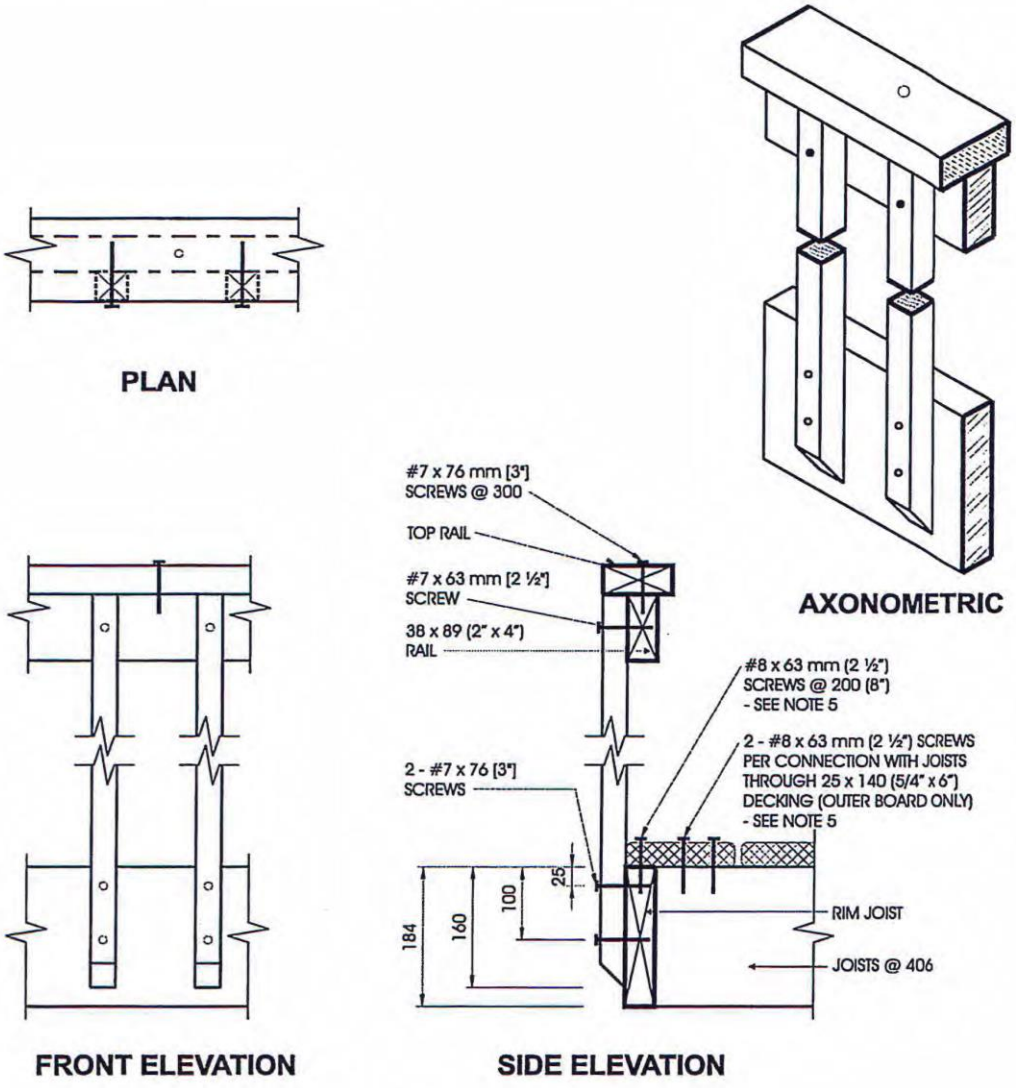


Detail EC-4

Exterior Connection: Infill Picket Screwed to Top Rail and Rim Joist

Note:

1. Dimensions shown are in mm unless otherwise specified.

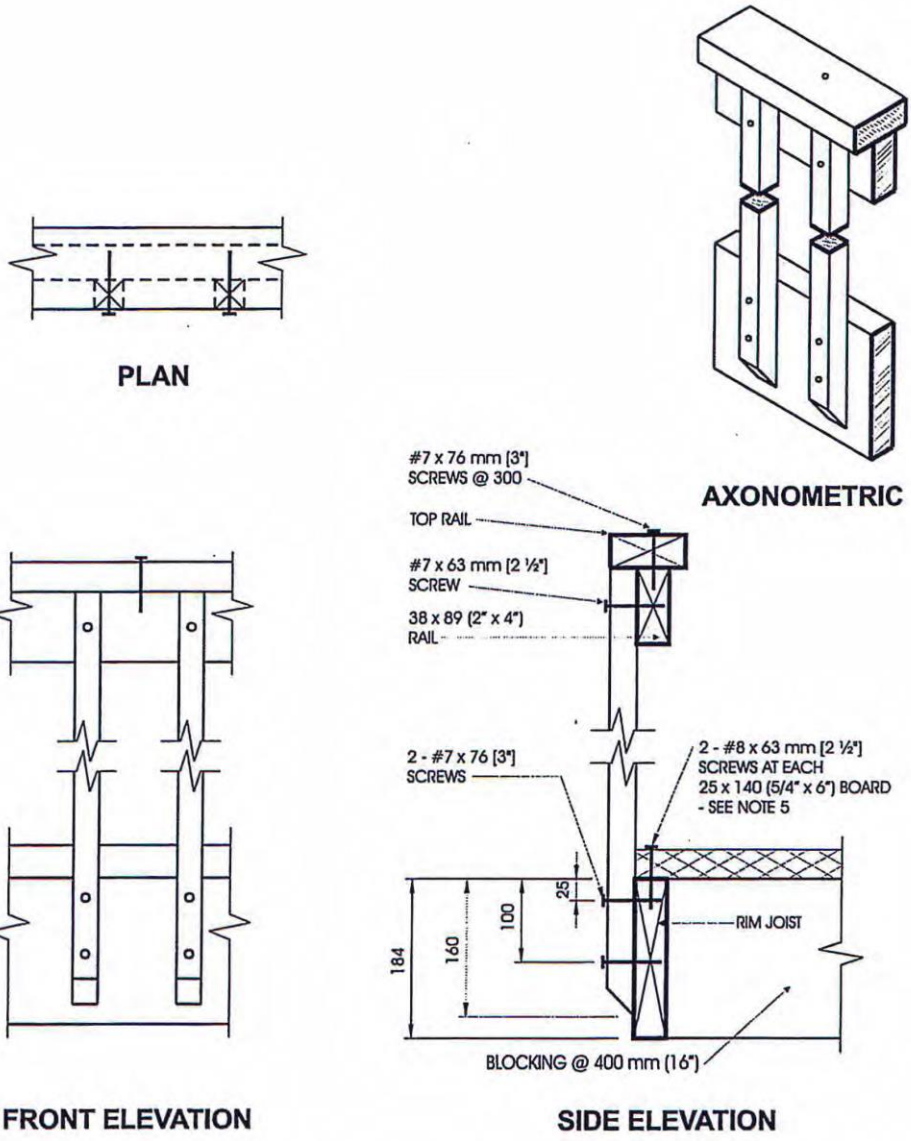


Detail ED-1

Exterior Connection: Cantilevered Picket Screwed to Rim Joist

Notes:

1. Provide a suitable post, return, or solid support at each end of the guard.
2. Wood for cantilevered pickets shall be Douglas Fir-Larch, Spruce-Pine-Fir, or Hem-Fir Species.
3. Fasten rim joist to each floor joist with 3 - 82 mm (3¼") nails.
4. Dimensions shown are in mm unless otherwise specified.
5. The outer deck board shall not be less than 140 mm (6" nominal) wide. Where 38 mm (2" nominal) thick boards are used, the length of the wood screws shall be not less than 76 mm (3").

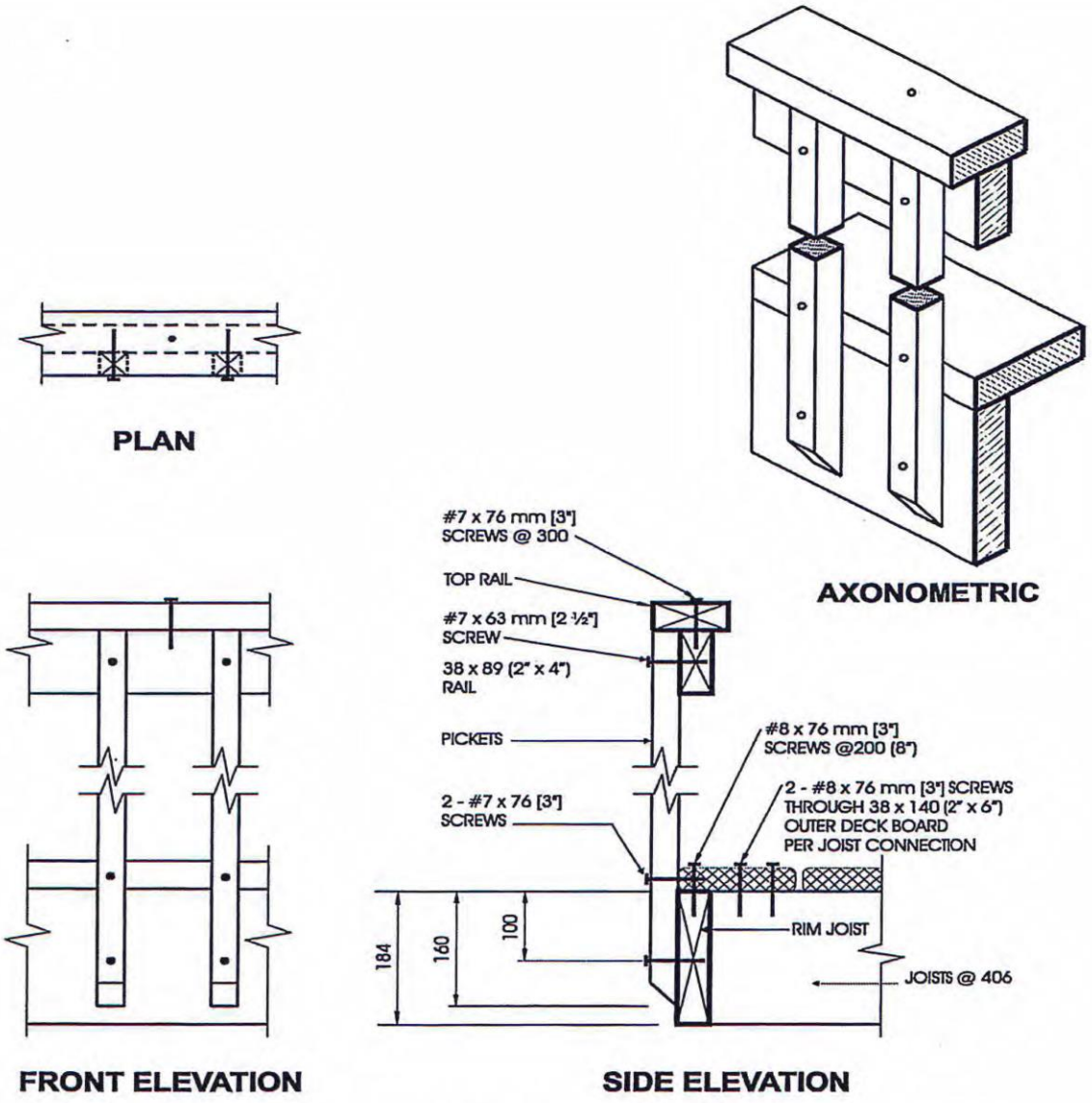


Detail ED-2

Exterior Connection: Cantilevered Picket Screwed to Rim Joist, Guard Parallel to Floor Joists

Notes:

1. Provide a suitable post, return, or solid support at each end of the guard.
2. Wood for cantilevered pickets shall be Douglas Fir-Larch, Spruce-Pine-Fir, or Hem-Fir Species.
3. Fasten rim joist to blocking with 3 - 82 mm (3¼") nails.
4. Dimensions shown are in mm unless otherwise specified.
5. Where 38 mm (2" nominal) thick boards are used, the length of the wood screws shall be not less than 76 mm (3").

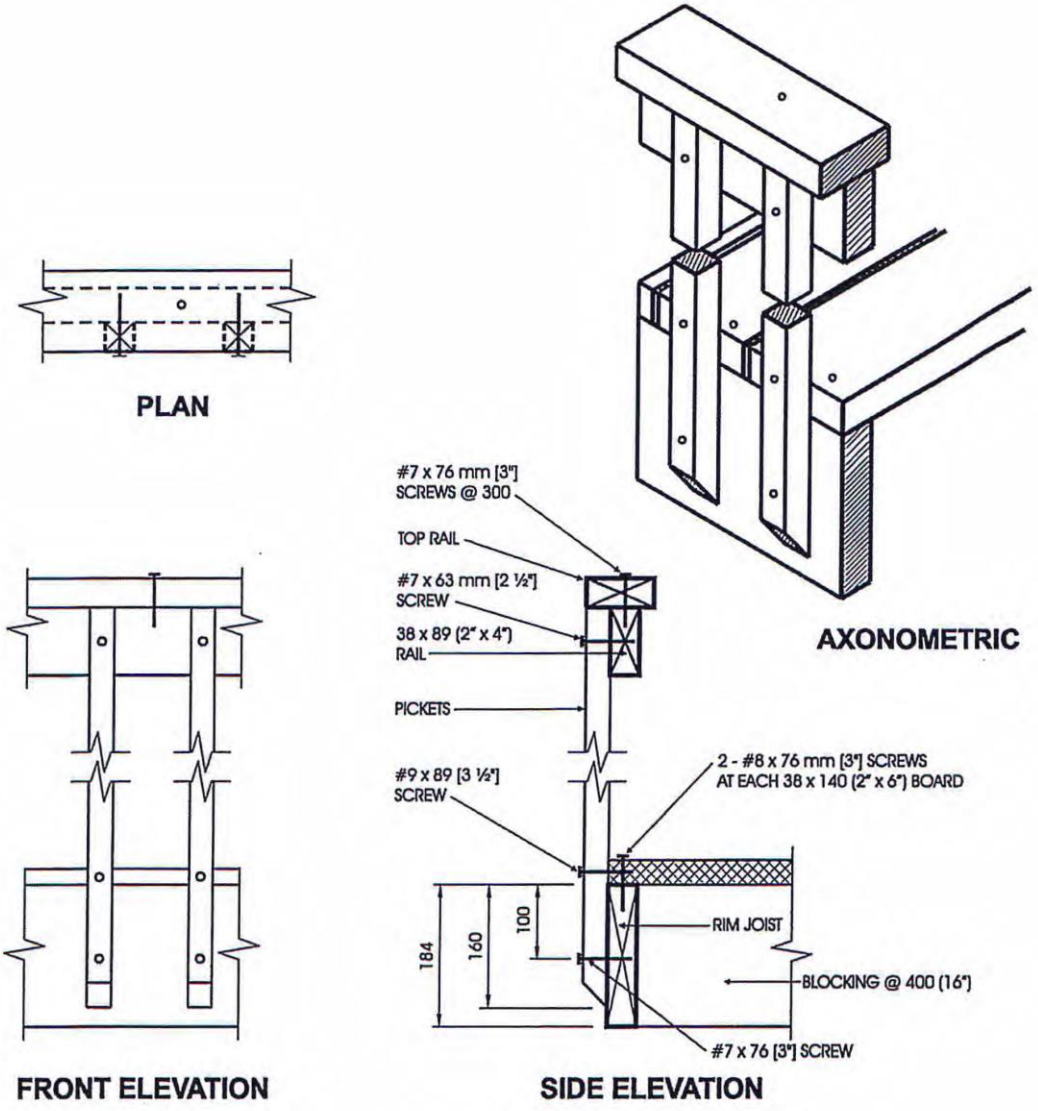


Detail ED-3

Exterior Connection: Cantilevered Picket Screwed to Rim Joist and Deck

Notes:

1. Provide a suitable post, return, or solid support at each end of the guard.
2. Wood for cantilevered pickets shall be Northern Species.
3. Fasten rim joist to each floor joist with 3- 82 mm (3¼") nails.
4. Dimensions shown are in mm unless otherwise specified.

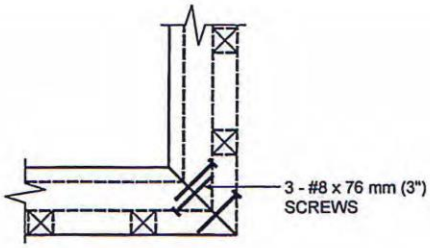


Detail ED-4

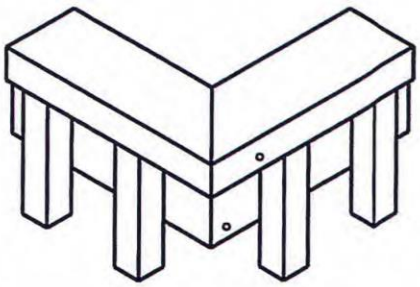
Exterior Connection: Cantilevered Picket Screwed to Rim Joist and Deck, Guard Parallel to Floor Joists

Notes:

1. Provide a suitable post, return, or solid support at each end of the guard.
2. Wood for cantilevered pickets shall be Northern Species.
3. Fasten rim joist to blocking with 3 - 82 mm (3¼") nails.
4. Dimensions shown are in mm unless otherwise specified.

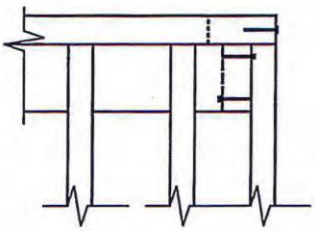


PLAN TOP RAIL

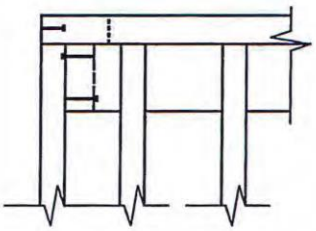


AXONOMETRIC

ONE FASTENER IN HORIZONTALLY ORIENTATED PORTION OF TOP RAIL
AND TWO IN VERTICALLY ORIENTATED PORTION.



FRONT TOP RAIL



SIDE TOP RAIL

Detail ED-5

Exterior Connection: Corner Joint

Notes:

1. Screws fastening pickets are omitted for clarity.
2. Provide a minimum of 10 pickets beyond the return if end restraint of the guard is provided by this return detail only.

Ramps

NOTE: The following information is for <u>barrier free path of travel (accessibility).</u> For non-barrier free exterior ramps serving a dwelling unit or a house with a secondary suite only, See OBC 9.8.5. Pictures are for illustration purposes only. Your ramp may vary depending on site conditions and customer preferences. However, the dimensions and values used are minimum and/or maximum Ontario Building code requirements. The following are requirements based on OBC regulations.

9.8.5. Ramps (R1), (**R2), (R3**) Refer to the Drawings in this section.

Width - Minimum 1000 mm (39 3/8”) between handrails **(R3)**

Slope - Maximum 1:12 **(R1)**

Height - Where the slope of the *ramp* is greater than 1 in 12, the maximum rise between floors or landings shall be 1500 mm 59 1/16”.

Landings - At the top and bottom 1700 mm min. (67”) x 1700 mm min. (67”).
- At intervals of maximum 9 meters (29’6”) or at a change in direction, landings shall be the same width as the ramp x minimum 1700 mm (67”). **(R1)**
- Where a door opens onto a ramp, so that the level area extends at least 600 mm beyond the latch side of the door opening, except that where the door opens away from the *ramp* , the area extending beyond the latch side of the door opening may be reduced to 300 mm , (See Note A-3.8.3.4.(1)(c)) **(R1),** (**R2)**

Handrails - Required one side where ramp is less than 1100 mm (43 5/16”) wide and both sides where ramp is equal to or over 1100 mm wide (43 5/16”). **(R3)**

- Where the ramp is wider than 2200 mm (86 5/8”), an intermediate handrail is required with maximum 825 mm (32 15/32”) between the intermediate handrail and one of the other handrails

- Be continuously graspable along their entire length.

- Be circular in cross-section or non-circular within the dimensions illustrated. **(R3)**

- Be a minimum of 865 mm (34”) and a maximum of 1070 mm (42 1/8””) high measured vertically above the surface of the ramp. **(R3)**

- Be terminated in such a manner that it will not obstruct traffic or cause a hazard.

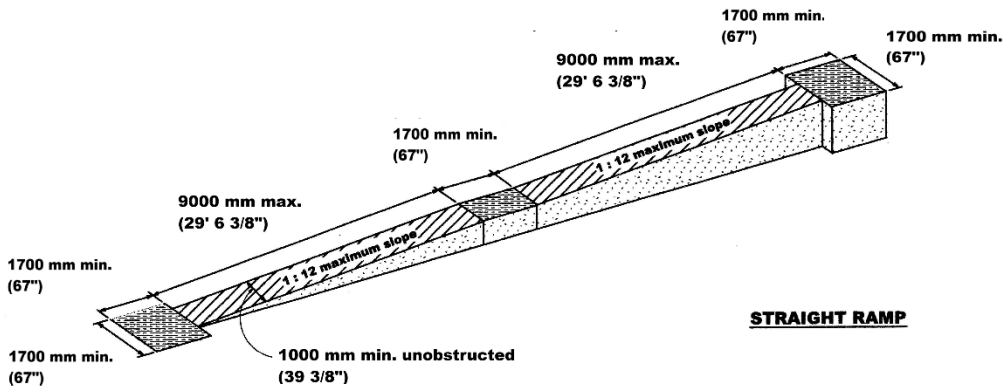
- Have a minimum clearance of 50 mm (2”) between the handrail and any wall or guard to which it is attached. If the adjacent surface is rough, the clearance is 60 mm (2 3/8”) **(R3)**

Walls / Guards - Required on any side where the ramp or landing surface is more than 600 mm (23 5/8”above the adjacent surface within 1.2 m (3’ 11 ¼ “). (See Deck section for guard details)

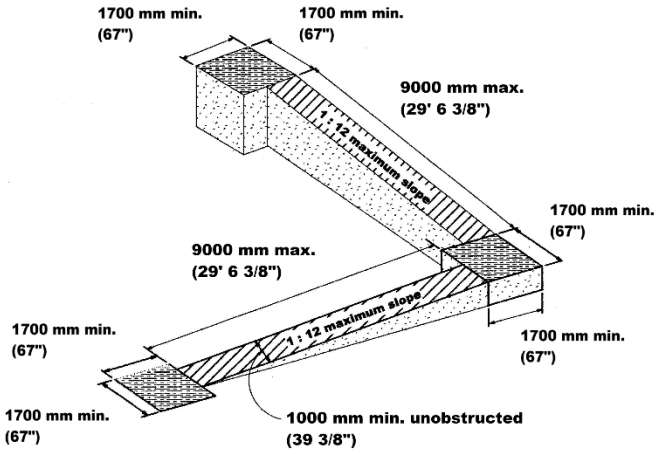
- Minimum 1070 mm (42”) high measured vertically above the surface of the ramp. **(R3)**

- Designed so that no member, attachment or opening located between 140 mm (5 ½”) and 900 mm (35 7/16”) above the surface will facilitate climbing.

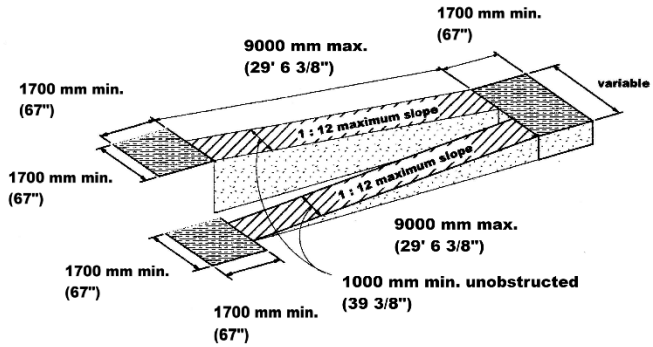
Barrier Free Ramp Detail Drawings



STRAIGHT RAMP

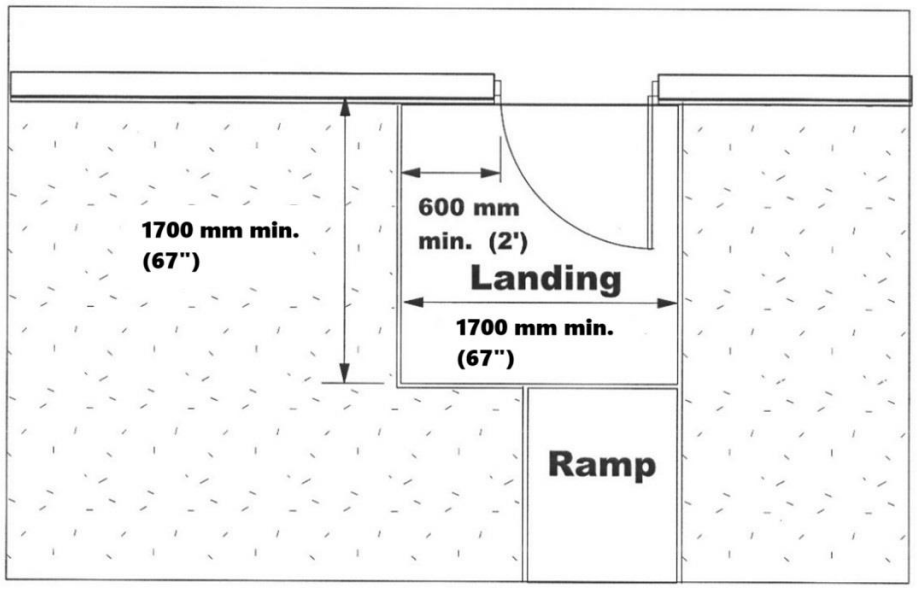


RIGHT ANGLE RAMP

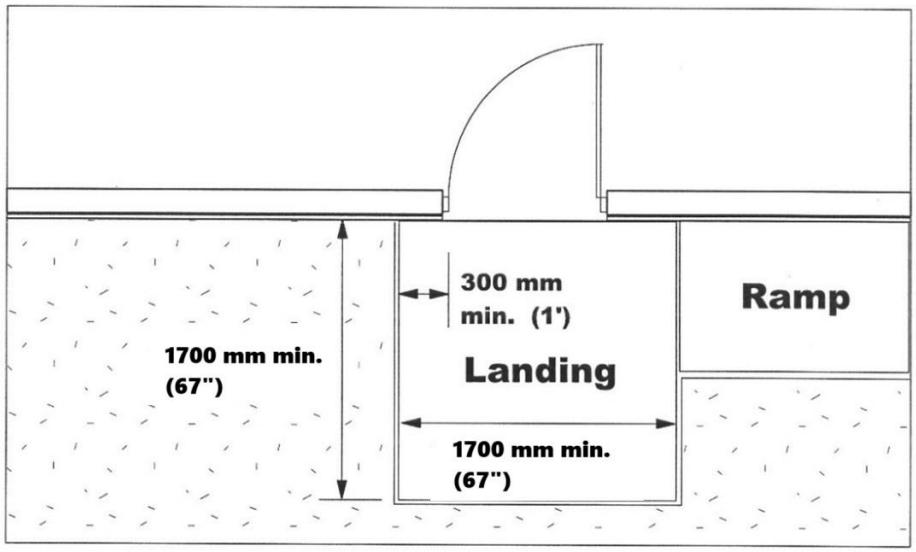


"SWITCH BACK" RAMP

Figure – R1
Barrier Free Landing Details



Door Swings Into Ramp Landing - Plan View



Door Swings Away From Ramp Landing - Plan View

Figure - R2

Barrier Free Guard and Handrail Details

Single dwelling non-accessible requirements may differ. See OBC 9.8.7

See also OBC 9.8.7.5 Appendix for definition of “Ergonomic Design”

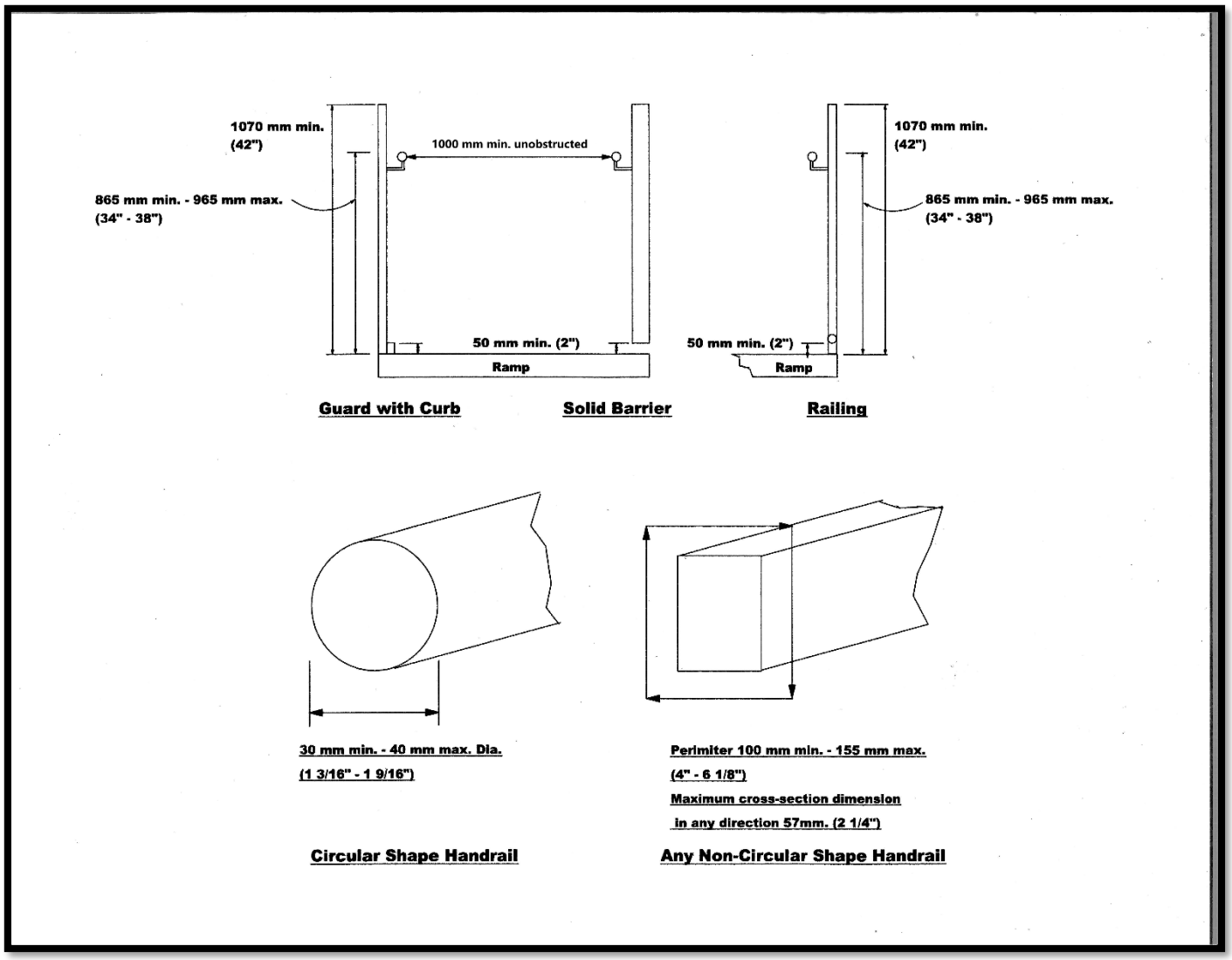


Figure - R3

Contact Information

Contacts are available on the Township of Cavan Monaghan Website;

Go to: Build and Invest > Building and Renovating

Acknowledgements

This booklet is a compilation of original text and drawings as well as text, excerpts and drawings from other sources including but not limited to the following:

Ontario Building Code 2024

Ontario Building Code SB-7

Cobourg Deck Guide

Canadian Wood Council

American Wood Council

Tacboc Standard Details.