



## Town of Penetanguishene Deck Permit Guidelines



Planning and Building Department

Town of Penetanguishene

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# A GUIDE TO OBTAINING A DECK PERMIT

This guide provides information to homeowners and contractors on obtaining a building permit to construct a deck within the Town of Penetanguishene. Questions should be referred to the Building Department.

## Application Process

The first step in the process is to create a Cloud Permit Account

<https://ca.cloudpermit.com/login>

Work completed prior to an application review may not meet Building Codes and may need to be redone.

The details of the deck design should be prepared following the guidelines for plan drawings and structural elements that are provided in this booklet.

## The following documentation is required:

Survey or site plan, drawn to scale, illustrating existing buildings/structures and the proposed location of the deck (see following page for example);

Plan Drawings

Completed deck design statement (see following pages)

Plans should include:

- Overall deck size
- Beam size and location
- Post size and location
- Floor joist size and spacing, as well as the direction the joists are spanning
- Location and width of stairs (if applicable)
- Height of deck at highest point
- Type of guard (railing) system being used

## Contractor's Obligation

Signed Authorization – downloadable form in Cloud Permit

If a contractor will be building the deck and is applying on behalf of the homeowner, a signed authorization from the homeowner is required (included in application process).

Building Code Identification Number (BCIN)

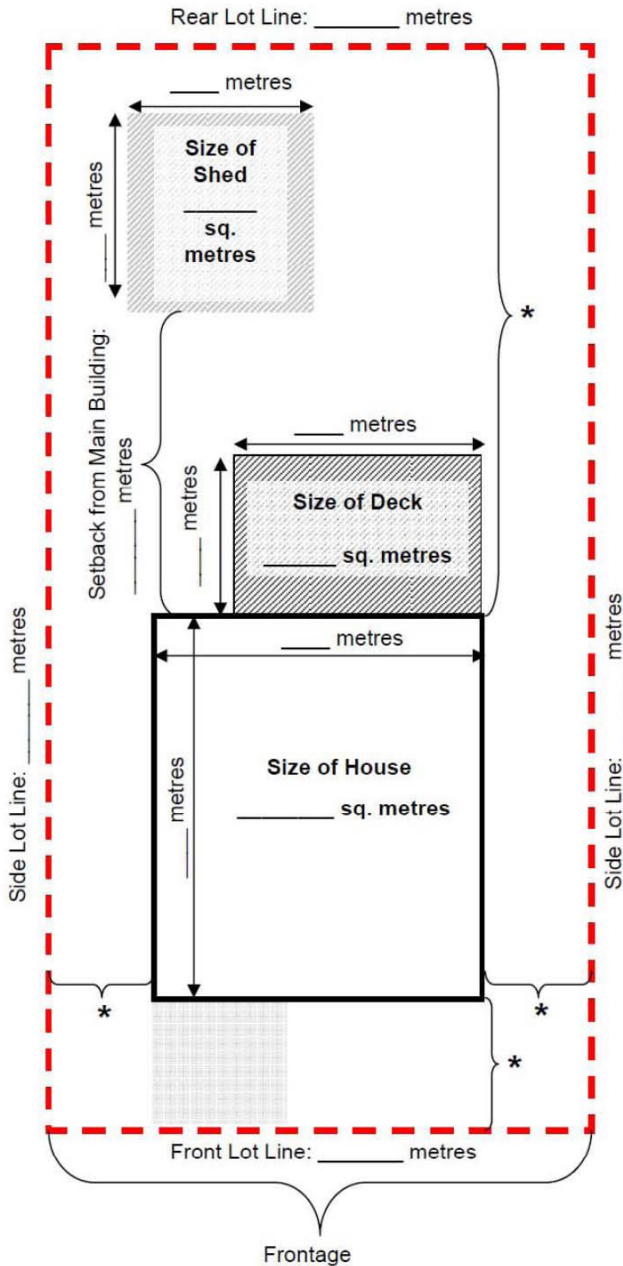
A Building Code Identification Number, or BCIN, is the unique identifying number assigned to individuals who file their qualifications with the Ministry of Municipal Affairs and Housing. As of January 1, 2006, most designers who prepare documents to be submitted with permit applications, required under the Building Code Act, and who are not licensed architects must:

- Be registered with the Ministry of Municipal Affairs and Housing
- Possess provincial qualifications

**Provide information about their qualification and registration on the permit application and on all design documents.** Homeowners who are preparing their own drawings for submission and take responsibility for the design activities of the project are **not required to have a BCIN Number.**



## Sample Site Plan Drawing



### Items required on site plan drawings:

- Measurements and location of property boundary/lot lines
- Location, size, and dimensions of *all* existing structures on the property (house, decks/porches, accessory buildings)
- Location, size, and dimensions of *proposed* construction
- Distances (setbacks) from all structures to each property line
- **Accessory Buildings:** Show distance of structure from the main building
- **Pools:** Indicate location of water treatment equipment and setbacks from property line(s)

### \* Setbacks

Front Yard Setback: \_\_\_\_\_ metres

Rear Yard Setback: \_\_\_\_\_ metres

Interior Yard Setbacks: \_\_\_\_\_ metres (a)  
 \_\_\_\_\_ metres (b)

Exterior Yard Setbacks: \_\_\_\_\_ metres (a)  
 (corner lot) \_\_\_\_\_ metres (b)

--- Property Line  
 Note: Property lines must be based on legal survey.

## DECK DESIGN STATEMENT

Please ensure that the attached Deck Design Statement is completed and uploaded with the Building Permit Application.

### Location of Property:

### General Project Information

(For multi-level decks, complete one sheet per level: Level No. \_\_\_\_\_)

1. What are the overall dimensions for the deck?
2. What is the height (vertical distance) from final grade to the top of decking?
3. Will the deck be attached to the house? (*circle answer*)      Yes      No

If yes, how far below grade are the footings of the house?

### Footings Information

1. Please circle the concrete pier diameter: 10 inch      12 inch      Other:
2. How far below ground level will the concrete pier extend?
3. What will be the maximum pier spacing? feet inches on centre

*NOTE: if a roof is ever planned to go over the deck a 28" footing will be required.*

### Framing Information

1. What is the post size? by What is post height?
2. What is the built-up beam size? 2" by at 2 ply 3 ply 4 ply (*circle answer*)
3. What size are the floor joists? 2" by with a joist spacing of inches on centre.
4. What is the joist span? feet inches (*clear span between supports*)
5. How far will the floor joists overhang the beam?
6. Please circle the type of decking material to be used: (*circle answer* Wood Composite Other:
7. What is the thickness of the decking material

**Guards Information**

1. Provide railing as per SB-7 attached. (ie. ED-1) SB-7 Detail

*Other Guards: please provide manufacturers specifications.*

**Stairs Information**

1. What is the width of stairs? inches

2. How many risers will there be?

Will the stairs have a landing? No Yes indicate length

3. If more than three (3) risers, what is the proposed height of the hand rail? Inches

## CONSTRUCTION REQUIREMENTS FOR DECKS

- Circular concrete piers to be a minimum of 10 inches in diameter and extend a minimum of 48 inches below finished grade.
- Piers shall be placed on footing pads or be tapered out at the bottom by 50% to provide proper bearing and to resist uplift.
- Footings or piers shall bear on undisturbed soil with a minimum bearing capacity of 1500 PSF.
- Size of piers may increase due to soil conditions or spacing.
- Support posts for beams to be a minimum 6 inches x 6 inches for all elevations over 5 feet, 11 inches.
- Anchorage to building with minimum ½ inch diameter bolts spaced not more than 16 inches apart. Deck is not permitted to be supported on brick veneer.
- Beam to post and post to base connections shall be securely fastened to resist uplift and lateral movement.
- Beam sizes and floor joist sizes to be determined from span tables below. (**Note: minimum permitted joist size is 2 inches x 8 inches.**)
- Guard height of 35 inches if top of deck exceeds 24 inches above grade or 42 inches if top of deck exceeds 5 feet, 11 inches. Guards shall be non-climbable and vertical balusters shall be spaced no more than 4 inches apart.
- Provide handrails on stairs if there are more than 3 risers. Wood guard posts to be a minimum 4 inches x 4 inches (solid).
- Deck blocks can only be used where the deck is not attached to the house, the deck is less than 55m<sup>2</sup> (592 ft<sup>2</sup>) and the distance from the finished ground to the underside of the floor joists is not more than 600 mm (23 5/8").

**NOTE:** All deck guards shall meet the requirements of the Ontario Building Code SB-7 Supplementary Guidelines or be designed by Part 4 of the Ontario Building Code (Engineered Drawings).

**BEAM TABLE**

DEPTH OF LINTELS	MAXIMUM ALLOWABLE SPANS
2 - 2" x 8"	5' - 5"
2 - 2" x 10"	6' - 8"
2 - 2" x 12"	7' - 8"
3 - 2" x 8"	7' - 3"
3 - 2" x 10"	8'
3 - 2" x 12"	10' - 3"

**FLOOR JOIST SPAN TABLE**

JOIST SIZE	SPACING	SPAN
2" x 8"	12" o/c	11' - 7"
	16" o/c	11' - 0"
2" x 10"	12" o/c	13' - 8"
	16" o/c	13' - 0"
2" x 12"	12" o/c	15' - 7"
	16" o/c	14' - 10"

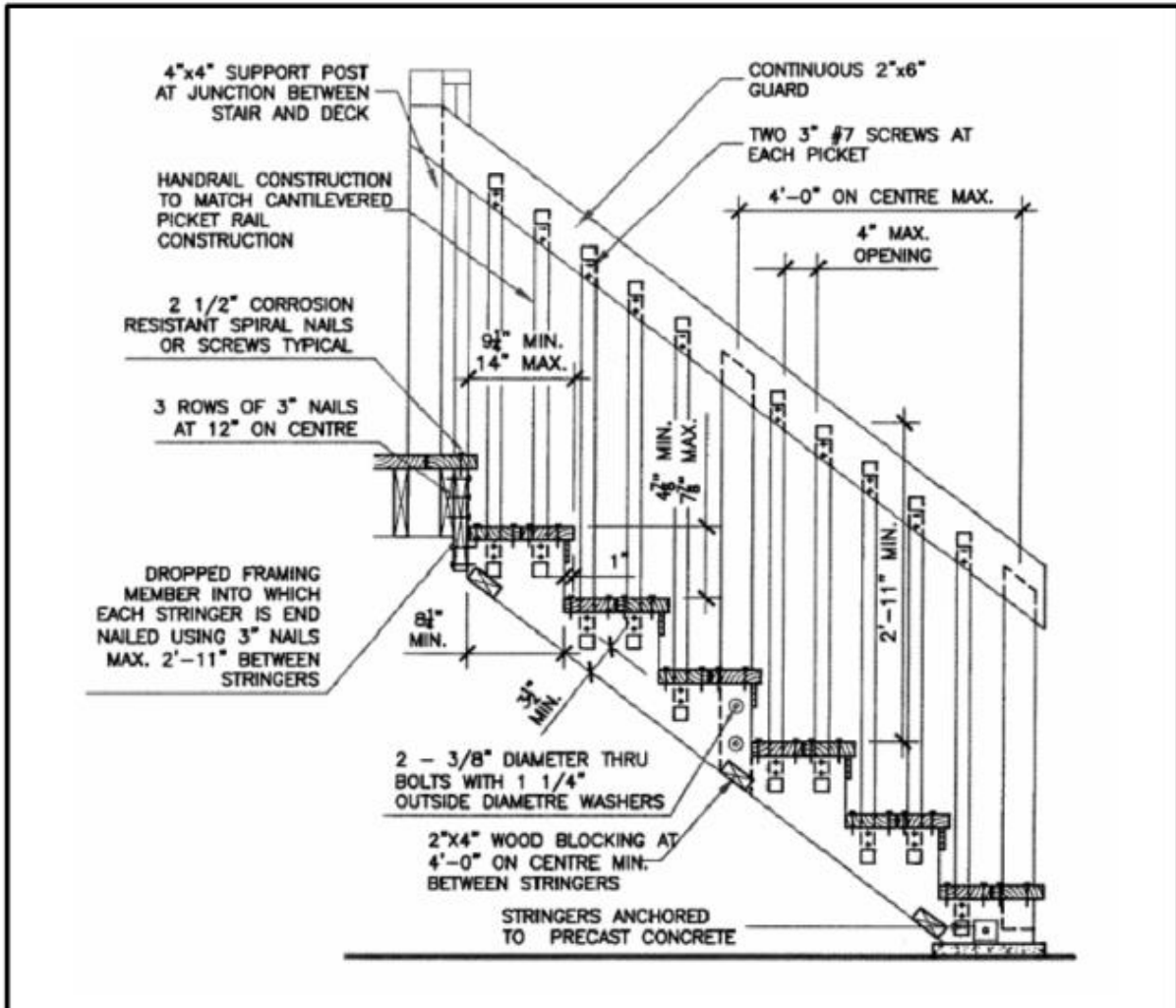
**These tables have been provided for your convenience. All plans to be reviewed by the Building Department prior to construction.**

### General Notes:

1. Site plan or survey is required showing all lot lines, dimensions, size and location of all existing buildings, proposed location and size of deck.

2. All lumber used must be stamped and graded No. 2 or better quality; must be treated or resistant to decay.
  3. Maximum cantilever (overhang) for 2" x 8" joists is 16" and for 2" x 10" joists is 24".
  4. 5/4" decking material is only permitted when supported by joists on 16" centers.
- \*\*\*The above information has been compiled from the Ontario Building Code and applicable laws\*\*\**

### Cantilevered Picket Guardrail



### Cantilevered Picket Notes:

1. Provide a minimum of 10 pickets beyond the return if end restraint of the guard is provided by this return detail only. Otherwise, a post is required (see anchoring above).
2. Pre-drill pilot holes in pickets to avoid splitting.

## Typical Stairs:

1. Provide a handrail 35" to 38" high on stairs if more than three risers. Provide a guard on both sides of stair where deck exceeds 24" from grade.
2. All steps to be equal rise and run between landings.

Minimum rise –  $4\frac{7}{8}$ " vertically  
Minimum tread =  $9\frac{1}{4}$ " horizontally

Maximum rise =  $7\frac{7}{8}$ " vertically  
Maximum tread = 14" horizontally

## SB-7 Guards for Housing and Small Buildings

### Section 1 General

#### 1.1. Introduction

##### 1.1.1. Scope

(See Appendix A.)

- (1) This Supplementary Standard includes details for the construction of wood guards.
- (2) Guards located on the exterior of a building, where they may be subject to deterioration, shall be constructed in accordance with Section 2 of this Supplementary Standard. (See Appendix A.)
- (3) Guards located inside a building shall be constructed in conformance with Section 2 or Section 3 of this Supplementary Standard.

#### 1.2. Design of Guards

##### 1.2.1. Cantilever Action

- (1) The construction details for guards in this Supplementary Standard are based on the assumption that the guard acts as a cantilever in resisting lateral loads. (See Appendix A.)

##### 1.2.2. Classification

- (1) The structural systems of guards described in this Supplementary standard are grouped in to the following classifications:
  - a. Post and Rails Systems, and
  - b. Cantilevered Picket Systems.(See Appendix A.)



## Section 2 Exterior Guards

### 2.1. Materials

#### 2.1.1. Lumber Grades

- (1) The minimum grade of softwood dimension lumber for posts, rails and joists shall be Northern Species, No. 2.
  - (2) The minimum grade of softwood dimension lumber for pickets shall be Northern Species, No. 2 Picket grade.
  - (3) Wood for pickets shall be free of loose knots.
- (See Appendix A.)

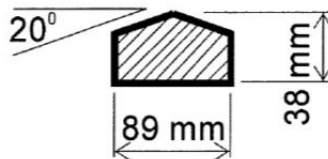
#### 2.1.2. Lumber Dimensions

- (1) Except as permitted in Sentence (1), the minimum sizes of loadbearing elements of wood guards shall conform to Table 2.1.2.

**Table 2.1.2.**  
Minimum Size of Loadbearing Elements

Guard Element	Minimum Size. mm (in)
Post	39 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

- (2) Where a bottom rail is beveled, the minimum sizes shown in Table 2.1.2. may be reduced to allow for a bevel, as detailed in Figure 2.1.2.



**Figure 2.1.2.**  
Bevel Detail

### 2.1.3. Floor Construction

(1) The minimum dimensions of wood floor joists and wood decking shall conform to Table 2.1.3.

(2) Except as provided in Details EA-1 to ED-5, wood decking shall be fastened to each floor joist with nailing conforming to Table 2.1.3.

(See Appendix A.)

Table 2.1.3.  
Minimum Size of Floor Elements

Floor Element	Minimum size, mm (in)
Dimension Lumber Decking	25 x 140 (5/4" x 6" nominal), when each plank fastened with 2 – 63 mm (2½") nails
	38 x 39 (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

### 2.1.4. Connectors

(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 Appendix A.)

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

### 2.1.5. Decay-Resistant Lumber

(1) Lumber for guard systems and floor systems shall be

- A species resistant to decay,
- Preservative treated to prevent decay, or
- Pressure- treated.

(See Appendix A.)

## 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 Number	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 (2½") 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 nails 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 is 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
<b>Column 2</b>	<b>2</b>	<b>3</b>

**Table 2.2.2.**  
Exterior Cantilevered Picket System Connection Details

Connection Detail	Detail Number	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
<b>Column 1</b>	<b>2</b>	<b>3</b>

## **Section 3 Interior Guards**

### **3.1. Materials**

#### **3.1.1. Lumber and Wood Products**

- (1) Lumber species used for primary loadbearing element in a guard shall be a species listed in the Table 3.1.2.
- (2) Except as provided in Sentence (4), the minimum grade of softwood dimension lumber for posts, rails and joists shall be Northern Species, No. 2.
- (3) Except as provided in Sentence (4), the minimum grade of softwood dimensions lumber for cantilevered pickets shall be Northern Species, No. 2.
- (4) White pine and hemlock lumber used for posts, rails and non-cantilevered pickets shall be clear straight grain material.
- (5) Oak, maple and yellow poplar lumber used for posts, rails and pickets shall be clear straight grain material.

#### **3.1.2. Lumber Dimensions**

- (1) The minimum sizes of loadbearing elements of wood guards shall conform to Table 3.1.2.

#### **3.1.3. Floor Construction**

- (1) The minimum dimensions of wood floor joists and wood subflooring shall conform to Table 3.1.3. (See A-2.1.3. in Appendix A.)

#### **3.1.4. Connectors**

- (1) Nails, screws, lag bolts and machine bolts shall not cause splitting of the wood elements. (See a-2.1.4. in Appendix A.)  
(See also A-2.1.4. in Appendix A for glued joints.)

### **3.2. Structural Details**

#### **3.2.1. Post and Rail System**

- (1) An interior guard constructed as a Post and Rail System shall conform to the applicable connection details listed in Table 3.2.1.

#### **3.2.2. Cantilevered Picket System**

- (1) An interior guard constructed as a Cantilevered Picket System shall conform to the applicable connection details listed in Table 3.2.2.

#### **3.2.3. Guards for Stairs**

- (1) An interior guard for stair shall conform to the appropriate connection details listed in Table 3.2.3.

**Table 3.1.2.**  
**Minimum Size of Loadbearing Elements**

Guard Element	Species	Minimum Size mm (in)	Detail Number
Post	Oak, Maple	70 x 70 (2¾" x 2¾") Base, 45 (1¾") Turned Diameter	IB-1, IG-1, IG-2, IG-3
	Hemlock, White Pine, Yellow Poplar	82 x 82 (3¼" x 3¼") Based, 50 (2") Turned Diameter	IB-1, IG-1, IG-2, IG-3
Post in a Volute	Oak, Maple	70 x 70 (2¾" x 2¾") Base, 50 (2") Turned Diameter	IG-4
Top Rail	Oak, Maple	41 x 67 ( 1-5/8" x 2-5/8")	IA-1, IF-1
Bottom Rail	Oak, Maple	41 x 67 ( 1-5/8" x 2-5/8") 19 x 67 (¾" x 2-5/8"), If continuously supported	
Infill Picket	Oak, Maple	20 (¾") Diameter	IC-1, IC-2
	Yellow Poplar	22 ( 7/8") Diameter	
	White Pine, Hemlock	24 (31/32") Diameter	
Picket in a Volute	Oak, Maple	32 x 32 (1-9/32" x 1-9/32") Base, 20 ( ¾ ") Turned Diameter	IG-4
	Yellow Poplar	45 x 45 (1¾" x 1¾") Base, 22 (7/8") Turned Diameter	IG-5, IG-6
	White Pine, Hemlock	45 x 45 (1¾" x 1¾") Base, 24 (31/32") Turned Diameter	
Cantilevered Picket	Northern Species, Douglas Fir-Larch, Spruce-Pine-Fire, Hem-Fir, Hardwood	32 x 32 (1-9/32" x 1-9/32")	IE-1, IH-1
<b>Column 1</b>	<b>2</b>	<b>3</b>	<b>4</b>

Notes to Table 3.1.2:

1. This column lists details that incorporate the guard elements specified in this Table.

**Table 3.1.3.**  
**Minimum Size of Floor Elements**

Floor Element	Minimum size, mm (in)
Subfloor	15.5 ( 5/8") plywood or equivalent
Dimension Lumber Joists	38 x 184 (2" x 8" nominal)
<b>Column 1</b>	<b>2</b>

**Table 3.1.3.  
Minimum Size of Floor Elements**

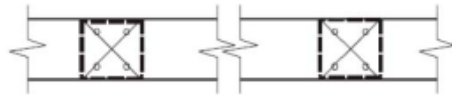
Connection Detail	Detail Number	Description
Top and/or Bottom Rail to Post	IA-1	Rail glued and screwed to post
Post to Floor	IB-1	Notched post glued and bolted to rim joists
Infill Picket	IC-1	Picket set into rails
	IC-2	Picket dowelled into rails
Stud Wall	ID-1	Wood stud and gypsum board
<b>Column 1</b>	<b>2</b>	<b>3</b>

**Table 3.2.2.  
Interior Cantilevered Picket System Connection Details**

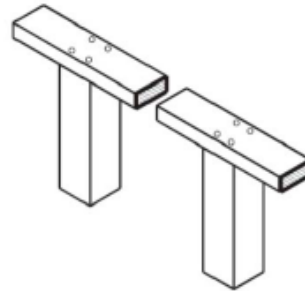
Connection Detail	Detail Number	Description
Picket to Floor	IE-1	Picket screwed to rim joist
<b>Column 1</b>	<b>2</b>	<b>3</b>

**Table 3.2.3.  
Interior Stair Guard Connection Details**

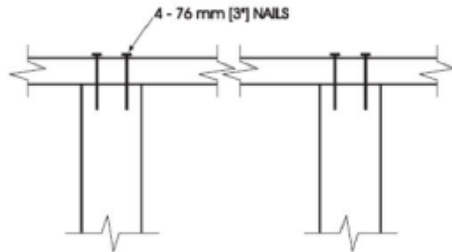
Connection Detail	Detail Number	Description
Rail to Post	IF-1	Top or bottom rail glued and screwed to post
Post to Floor	IG-1	Notched post glued and screwed to stringer and riser
	IG-2	Post glued and screwed to stringer
And/or	IG-3	Post glued and screwed to stringer and stud wall
Picket Volute to Floor	IG-4	Post and picket volute, oak or maple
	IG-5	Picket volute, 260 mm (10 $\frac{1}{4}$ " ) wide
	IG-6	Picket volute, 240 mm (9 $\frac{1}{2}$ " ) wide
Infill Picket	Detail IC-1 or IC-2 in Table 3.2.1., modified to suit a sloping installation, may be used.	
Cantilevered Picket	IH-1	Picket screwed to stair stringer
<b>Column 1</b>	<b>2</b>	<b>3</b>



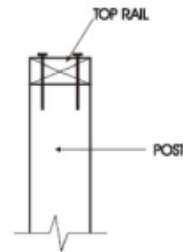
**PLAN**



**AXONOMETRIC**



**FRONT ELEVATION**



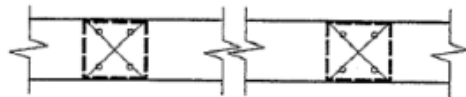
**SIDE ELEVATION**

**Detail EA-1**  
**Exterior Connection: Top Rail Nailed to Post**

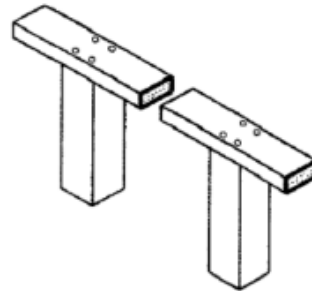
**Notes:**

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

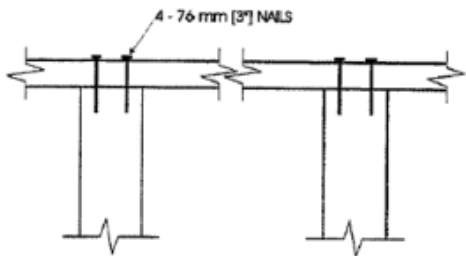
<b>MAXIMUM SPAN OF RAIL BETWEEN POTS</b>	
<b>Species</b>	<b>Maximum Span. M (ft-in)</b>
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.52 (5'-0")
Northern Species	1.52 (5'-0")
<b>Column 1</b>	<b>2</b>



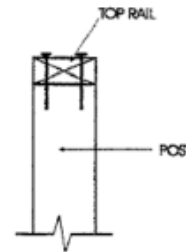
**PLAN**



**AXONOMETRIC**



**FRONT ELEVATION**



**SIDE ELEVATION**

**Detail EA-2**

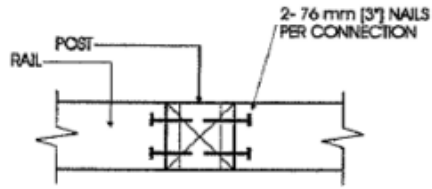
**Exterior Connection: Top/Bottom Rail Skew Nailed to Post – 76 mm (3") Nails**

**Notes:**

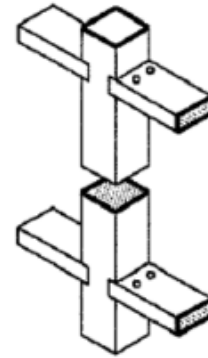
1. The maximum span is more often governed by post spacing.
2. Provide support to bottom rail at intervals not more than 2.0 m (6'-7").
3. The bottom rail may be beveled as detailed in Figure 2.1.2.
4. Dimensions shown are in mm unless otherwise specified.

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

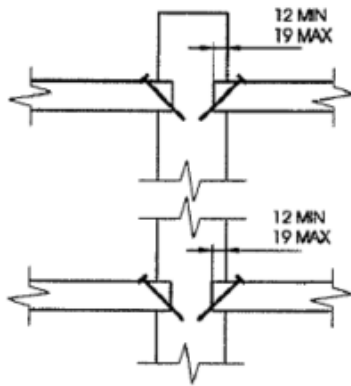




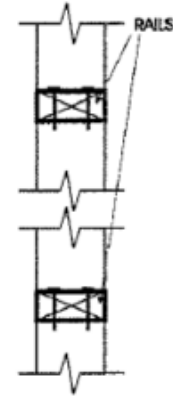
**PLAN**



**AXONOMETRIC**



**FRONT ELEVATION**



**SIDE ELEVATION**

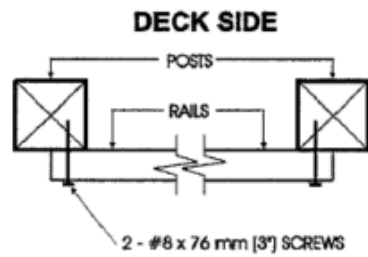
**Detail EA-3**

**Exterior Connection: Top/Bottom Rail Skew Nailed to Post – 63 mm (2½ inch) Nails**

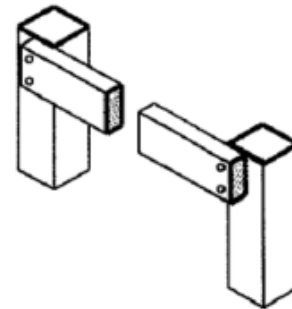
**Notes:**

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

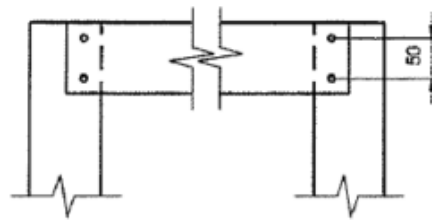
MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	2.72 (8'-11")
Northern Species	2.18 (7'-2")
<b>Column 1</b>	<b>2</b>



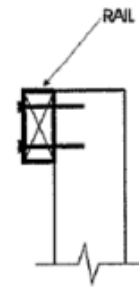
**PLAN**



**AXONOMETRIC**



**FRONT ELEVATION**



**SIDE ELEVATION**

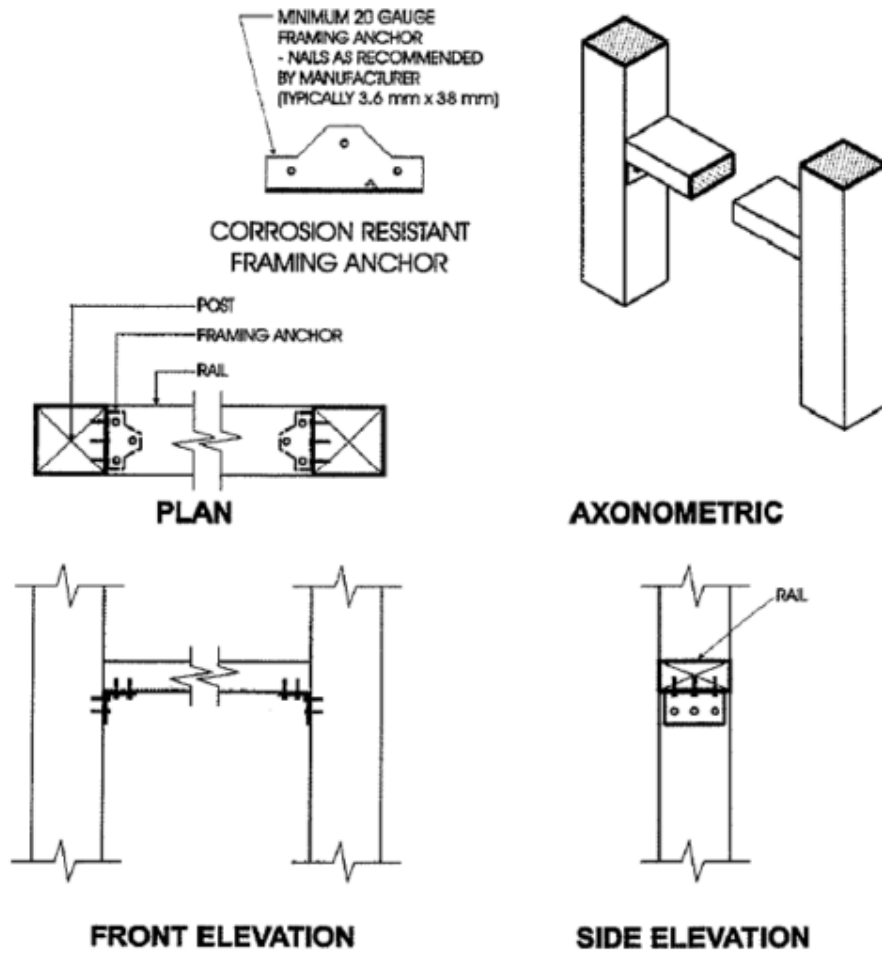
**Detail EA-4**

**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')
<b>Column 1</b>	<b>2</b>

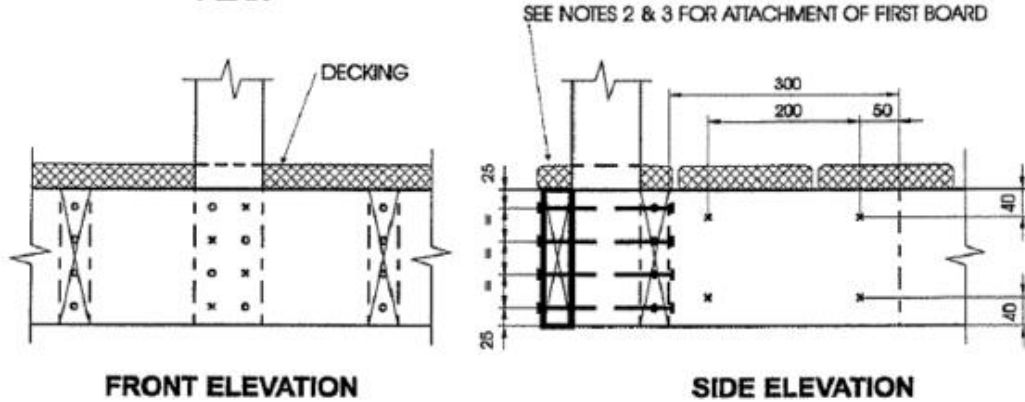
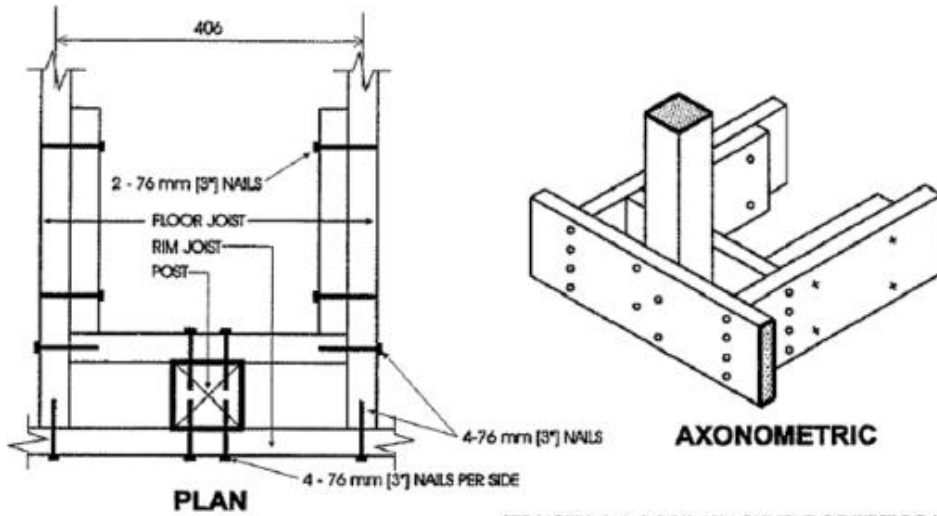


**Detail EA-5**  
**Exterior Connection: Top/Bottom Rail Face Fastened to Post with Framing Anchors**

**Notes:**

1. Provide support to bottom rail at intervals not more than 2.0 m (6'-7").
2. The bottom rail may be beveled 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")
<b>Column 1</b>	<b>2</b>



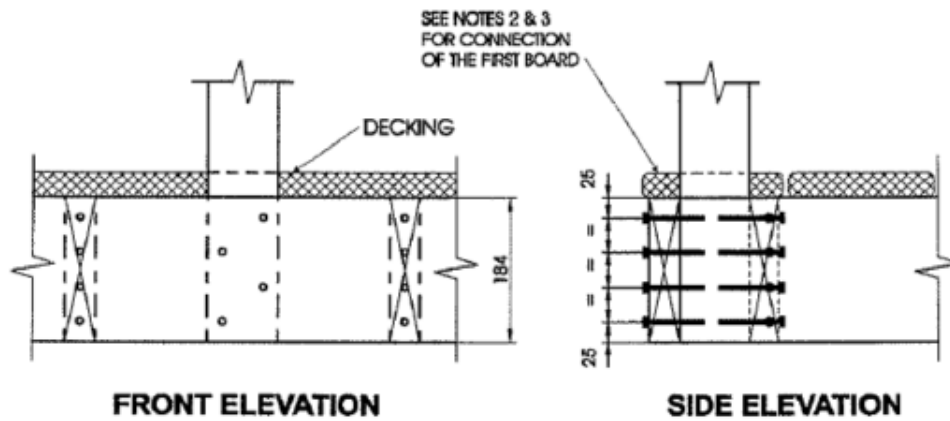
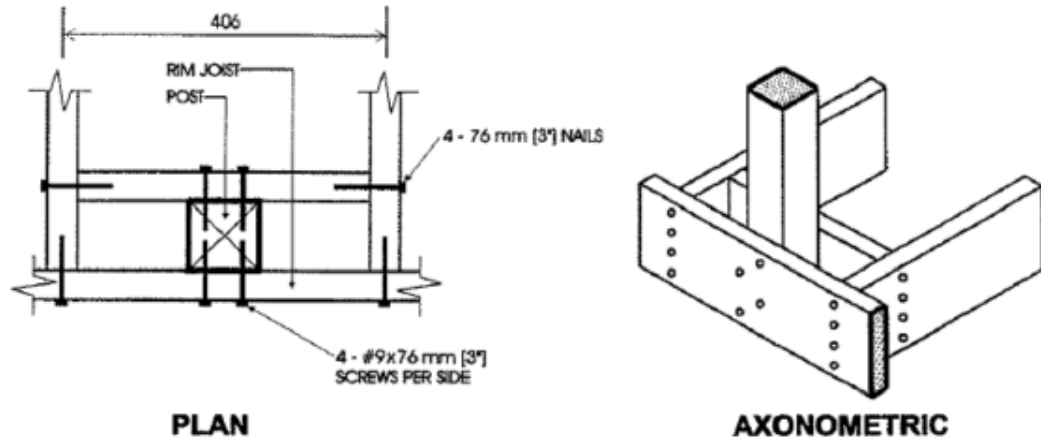
**Detail EB-1**

**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")
<b>Column 1</b>	<b>2</b>

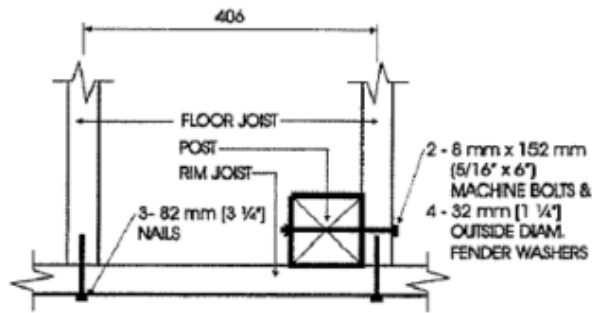


**Detail EB-2**  
**Exterior Connection: Post Screwed to Rim Joist**

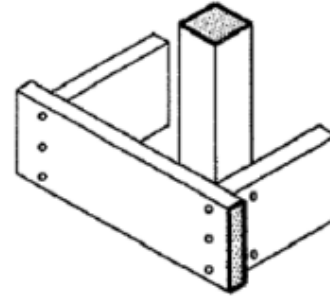
**Notes:**

6. Decking is omitted from the plan view and the axonometric view for clarity.
7. 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").
8. 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.
9. The post may be positioned anywhere between the joists.
10. #9 screws may be replaced by #8 screws if the maximum spacing between posts is not more than 1.20 m (3'-11").
11. Dimensions shown are in mm unless otherwise specified.

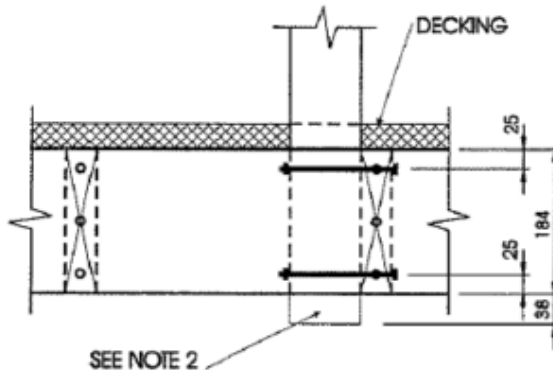
MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir	1.56 (5'-1")
Northern Species	1.20 (3'-11")
Column 1	2



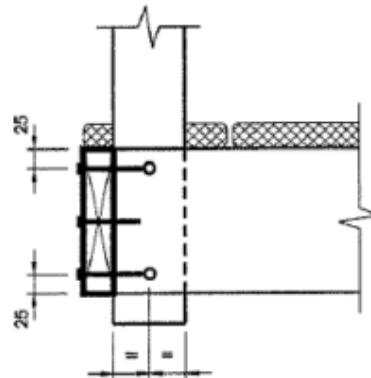
**PLAN**



**AXONOMETRIC**



**FRONT ELEVATION**



**SIDE ELEVATION**

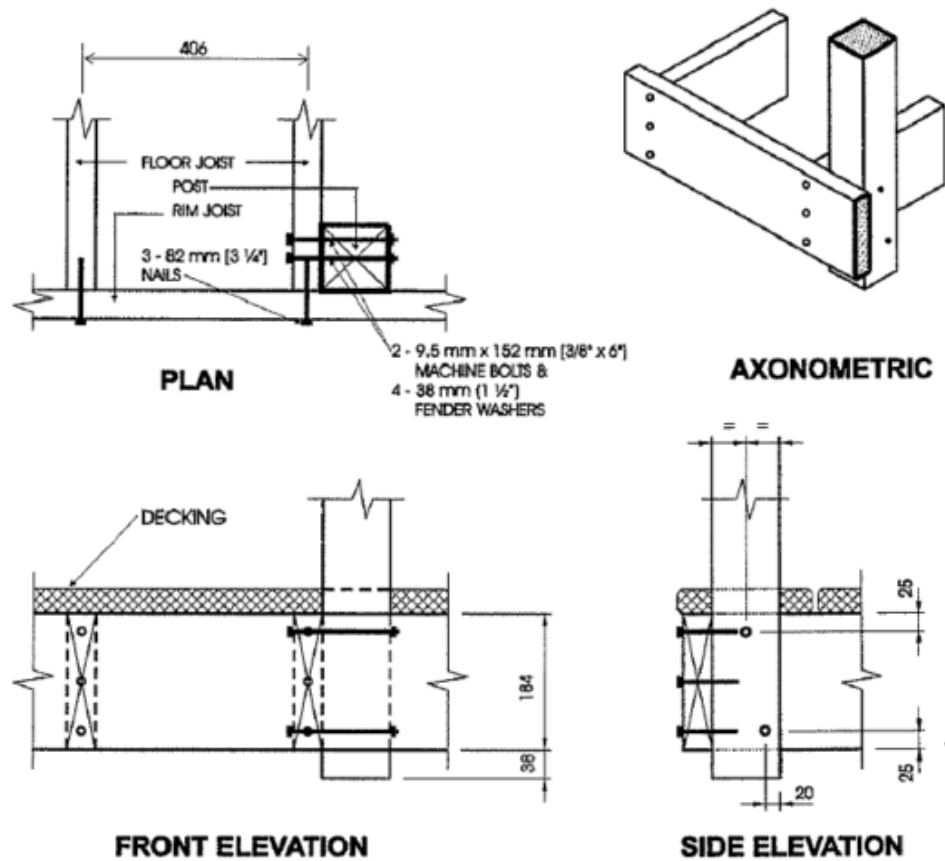
**Detail EB-3**

**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 (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 SPAN OF RAIL 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")
<b>Column 1</b>	<b>2</b>



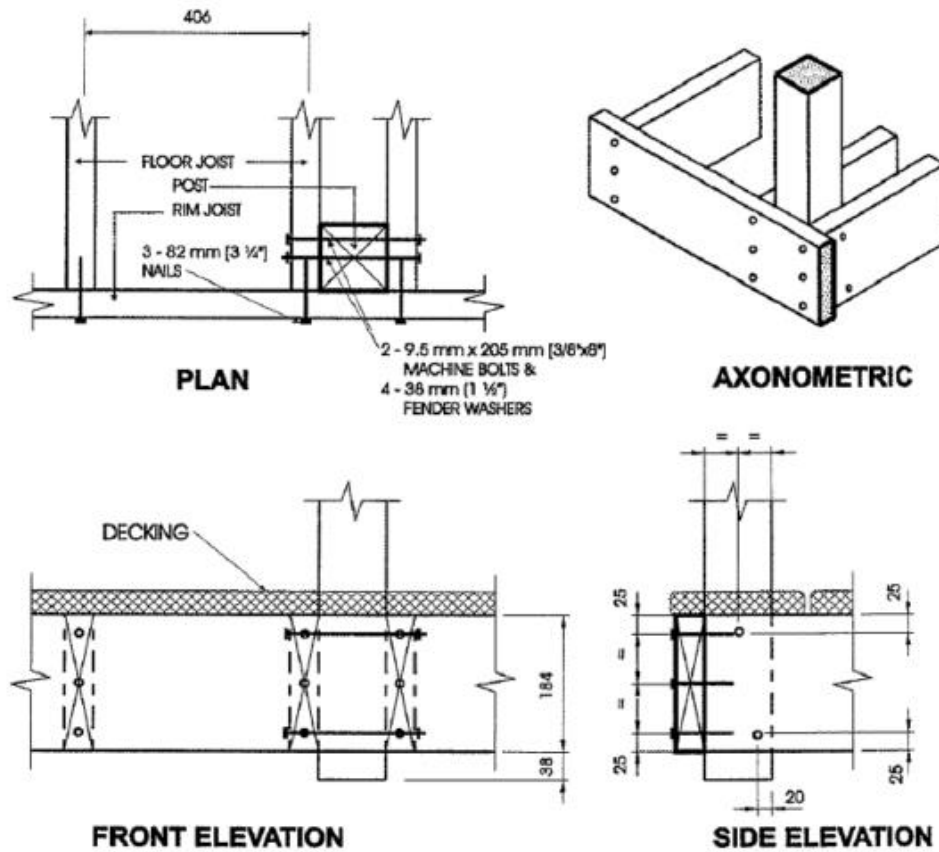
**Detail EB-4**

**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 SPAN OF RAIL 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")
<b>Column 1</b>	<b>2</b>



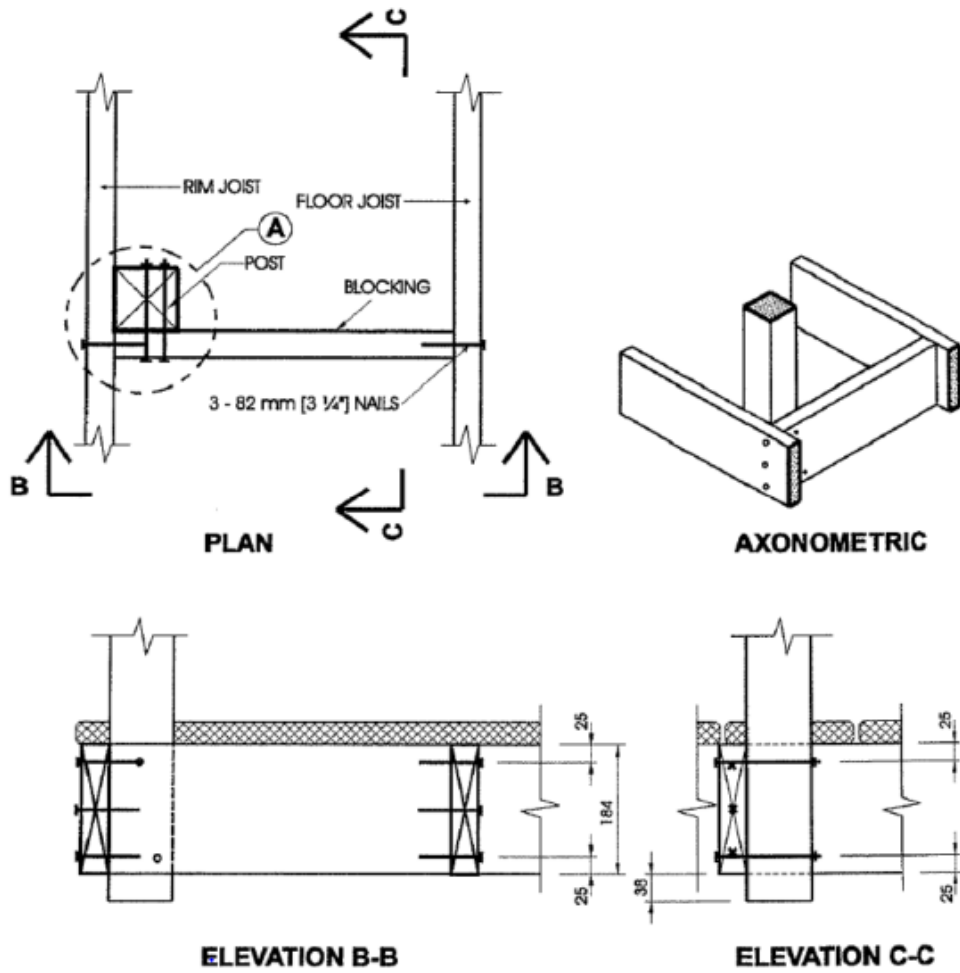
**Detail EB-5**  
**Exterior Connection: Post Bolted to 2 Floor Joist**

**Notes:**

1. Decking is omitted from the plan view and the axonometric view for clarity.
2. 38 mm (1 1/2") 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 (1 1/2") and shall be fastened to the floor with 2 - 76 mm (3") nails.
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	2.14 (7'-0")
Northern Species	1.20 (3'-11")
<b>Column 1</b>	<b>2</b>



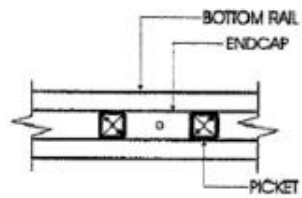


**Detail EB-6**  
**Exterior Connection: Post Fastened to Floor, Guard Parallel to Floor Joists**

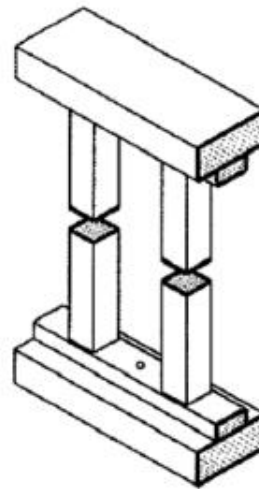
**Notes:**

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).

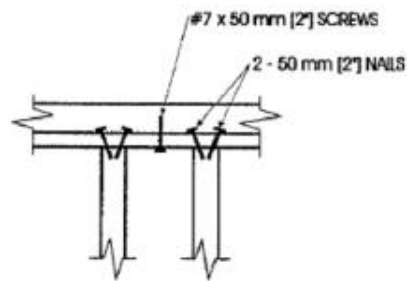
5. Dimensions shown are in mm unless otherwise specified.



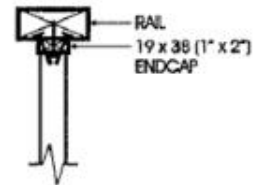
**PLAN  
BOTTOM RAIL**



**AXONOMETRIC**



**FRONT ELEVATION**



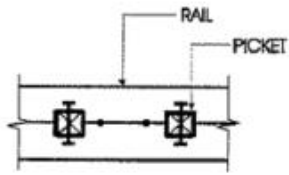
**SIDE ELEVATION**

**Detail EC-1**

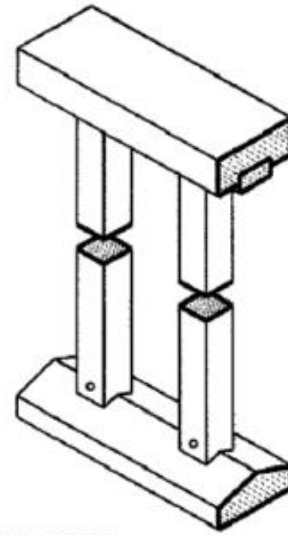
**Exterior Connection: Infill Picket Nailed to Endcap – Endcap Screwed to Rail**

**Notes:**

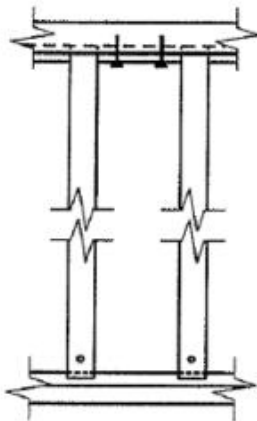
1. Fasten each end of each picket to endcaps with 2 – 50 mm (2") nails.
2. Fasten endcaps to rails with #7 x 50 mm (2") screws at 300 mm (12") o.c.
3. See Table 2.1.2. for minimum sizes of pickets.



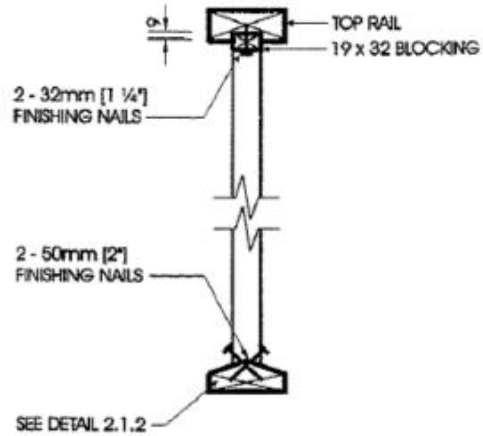
**PLAN  
BOTTOM RAIL**



**AXONOMETRIC**



**FRONT ELEVATION**



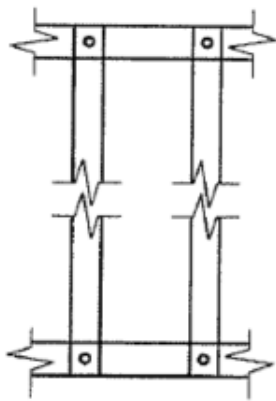
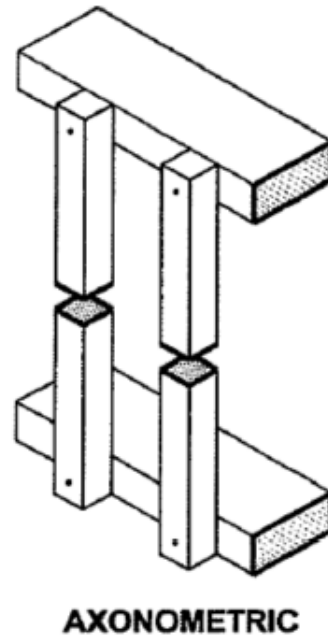
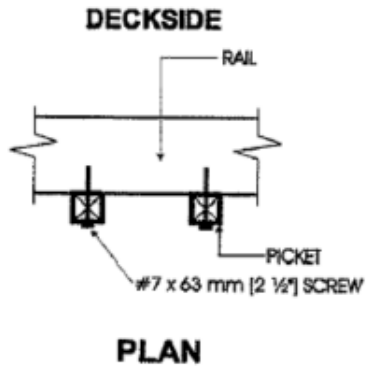
**SIDE ELEVATION**

**Detail EC-2**

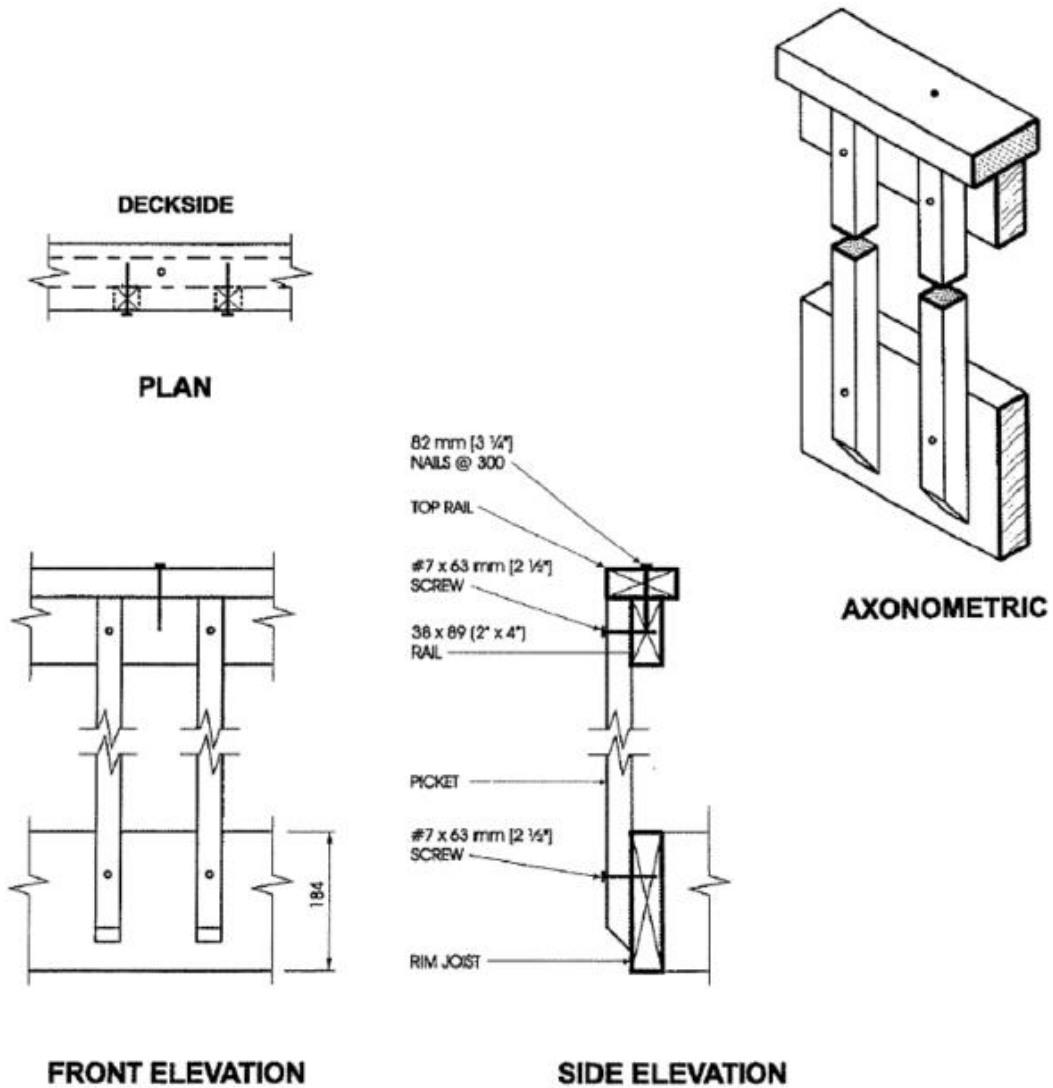
**Exterior Connection: Infill Picket Nailed to Rail**

**Notes:**

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



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

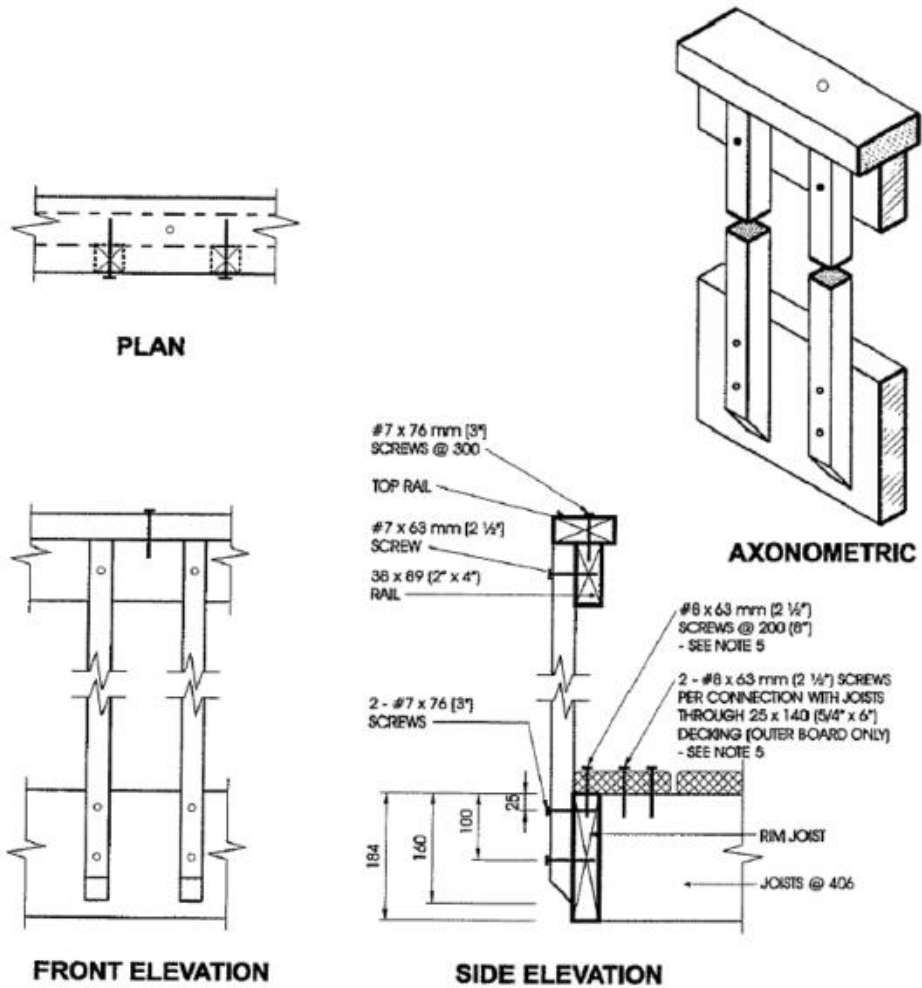


**Detail EC-4**

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

**Notes:**

1. Dimensions shown are in mm unless otherwise specified.

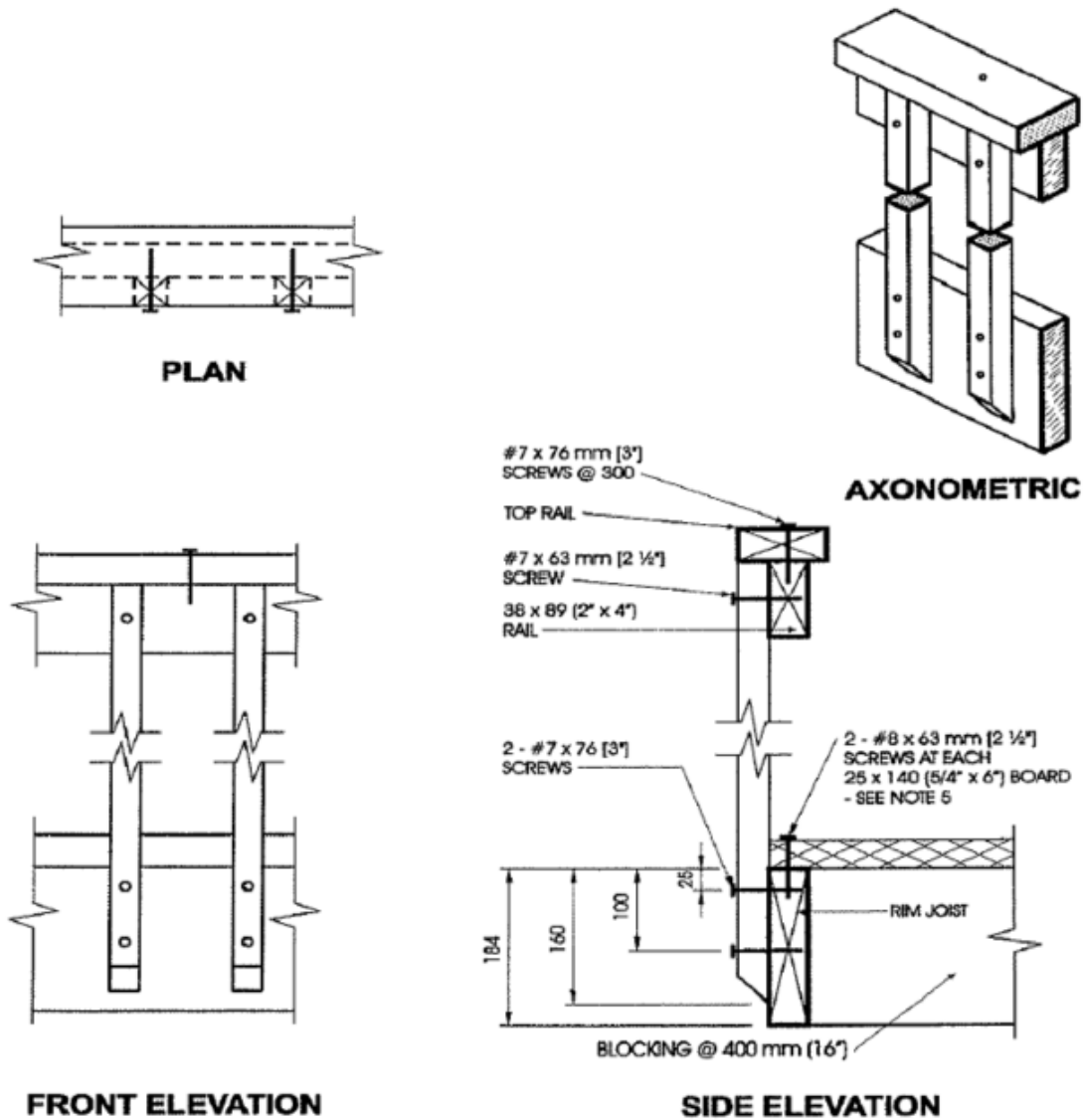


**Detail ED-1**

**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-Fire, or Hem-Fir Species.
3. Fasten rim joist to each floor joist with 3 – 82 mm (3 1/4") 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").

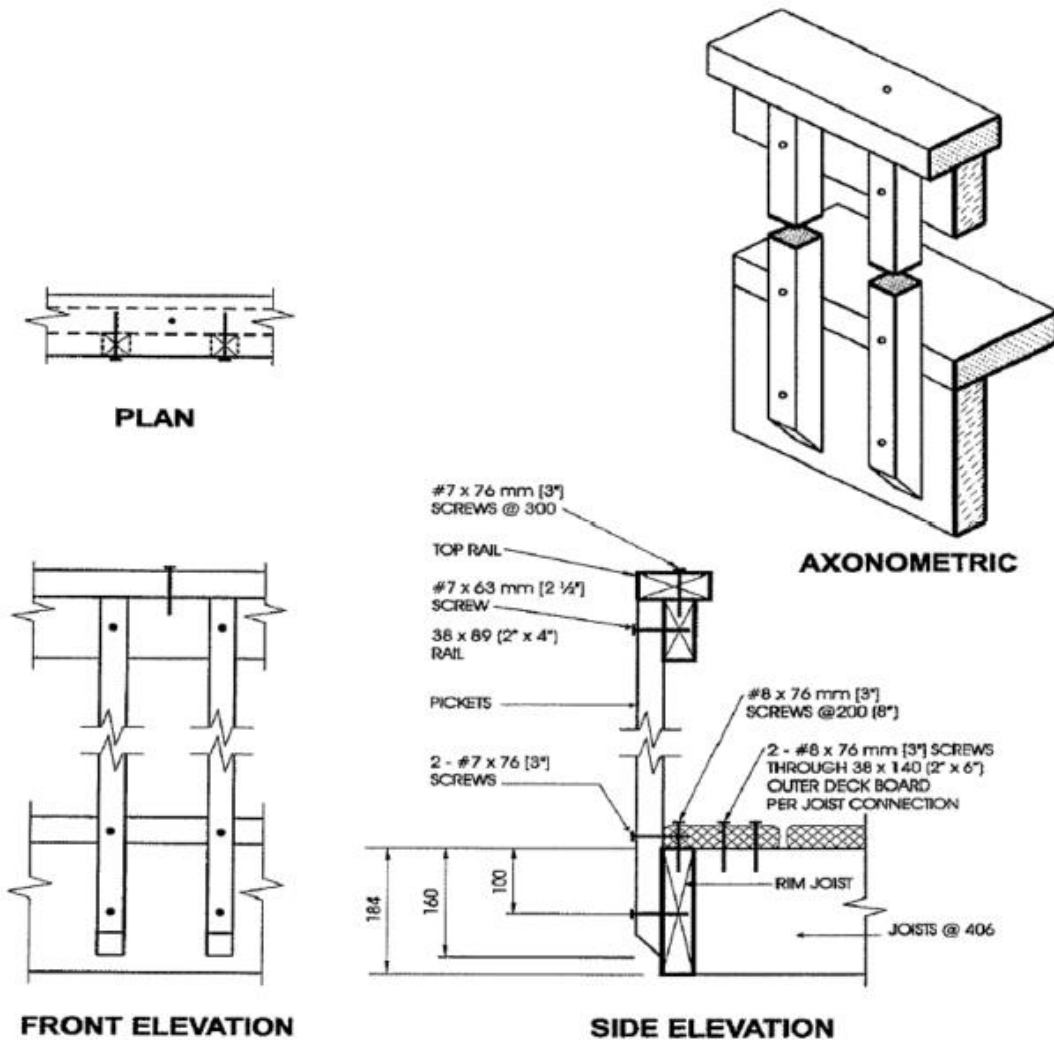


**Detail ED-2**

**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-Fire, or Hem-Fir Species.
3. Fasten rim joist to each floor joist with 3 - 82 mm (3 1/4") 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").



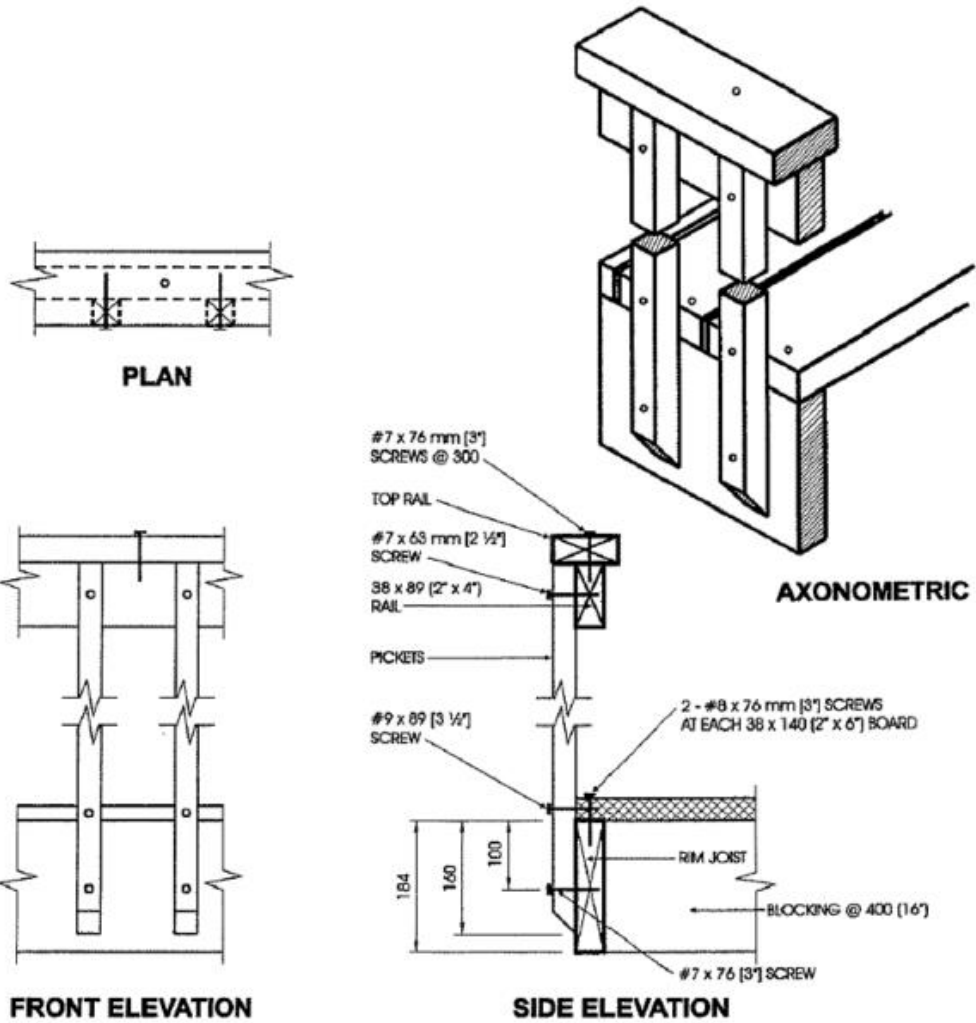
**Detail ED-3**

**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 (3 1/4") nails.
4. Dimensions shown are in mm unless otherwise specified.



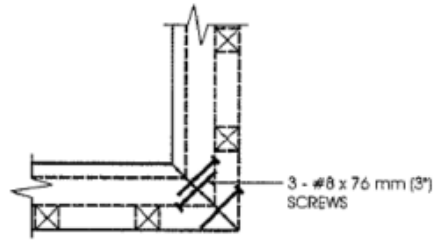


**Detail ED-4**

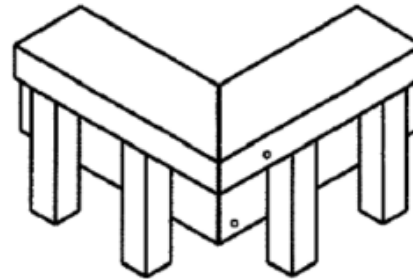
**Exterior Connection: Cantilevered Picket Screwed to Rim Joist and Deck, Guard Parallel to Floor Joists**

**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 each floor joist with 3 – 82 mm (3 1/4") nails.
4. Dimensions shown are in mm unless otherwise specified.

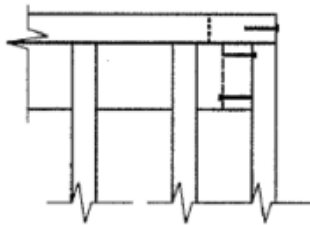


**PLAN TOP RAIL**

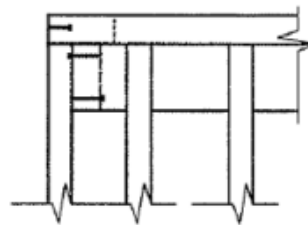


**AXONOMETRIC**

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



**FRONT TOP RAIL**



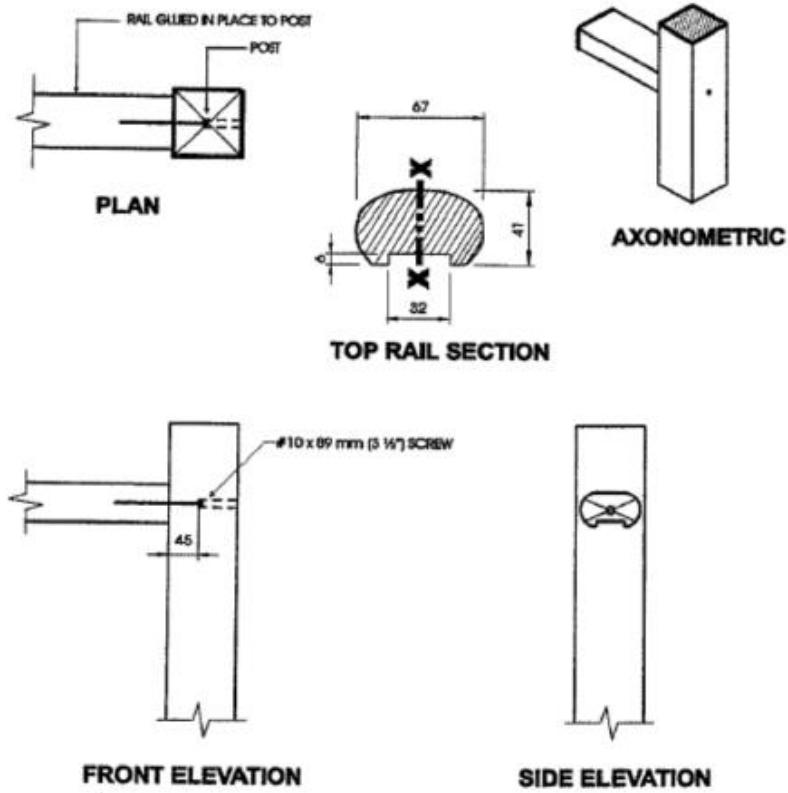
**SIDE TOP RAIL**

**Detail ED-4**

**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.



**Detail IA-1**  
**Interior Connection: Rail Glued and Screwed to Post**

**Notes:**

1. Other top rail systems may be used provided the section modulus is not less than 24,000 mm<sup>3</sup>, measured about the x-x axis.
2. Pickets omitted on drawing for clarity.
3. Connection details for fastening of pickets to rails are shown on Details IC-1 and IC-2.
4. Dimensions shown are in mm unless otherwise specified.

MAXIMUM SPAN OF RAIL BETWEEN POSTS	
Species	Maximum Span, m (ft-in)
Oak, Maple	3.30 (10'-10")
<b>Column 1</b>	<b>2</b>

# Appendix A

## Explanatory Material for SB-7

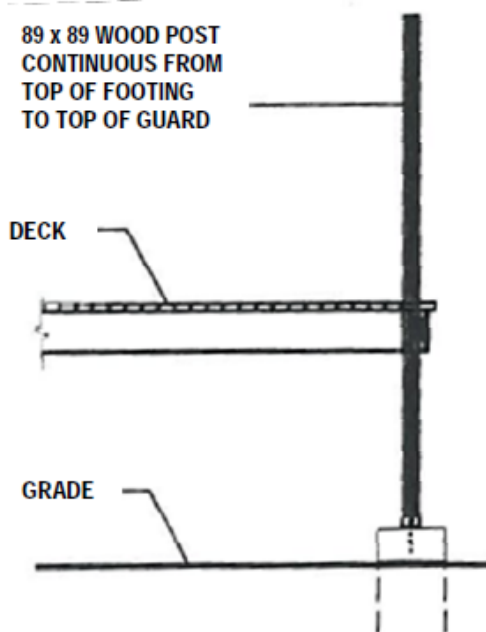
Appendix A to this Supplementary Standard is included for explanatory purposes only and does not form part of the requirements. The bold-faced reference numbers that introduce each item apply to the requirements in the Supplementary Standard.

**A-1.1.1.** Scope. A guard constructed in conformance with this Supplementary Standard is deemed to satisfy the requirements of Sentence 9.8.8.8.(2) of Division B.

Guard design in Supplementary Standard is based on a height of 1 070 mm and a maximum clear spacing of 100 mm between pickets of balusters.

**A-1.1.1.(2)** Guards located on the exterior of a building are subject to deterioration as a result of hygrothermal electrochemical or biochemical action.

**A-1.2.1.** Cantilever Action. When guards incorporate wood posts that are continuous from the top of the guard to the ground, or where the tops of the posts are attached to a superstructure that is connected to the building, the cantilever assumption in the Supplementary Standards is no longer valid. An example of a continuous post is shown in Figure A-1.2.1.



**Figure A-1.2.1.**  
**Typical Continuous Post**

### -1.2.2. Classification.

A Post and Rail System consists of a top rail that transfers horizontal loads to posts. The posts transfer the loads from the rail to the floor system. This system may incorporate a bottom rail that is anchored at each end to the posts.

Infill panels or infill pickets are installed between the top rail and the floor or bottom rail.

Examples of Post and Rail Systems are shown in Figure A-1.2.2.A.

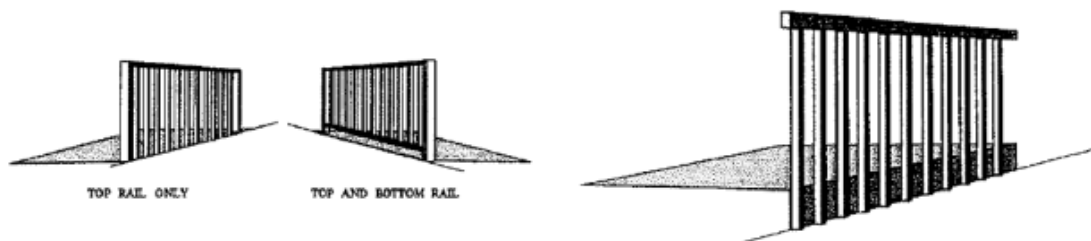
The term “infill pickets” refers to an assembly of vertically oriented elements that span between the floor or bottom rail and the top rail. For the purpose of this Supplementary Standard, the words “picket” and “baluster” both relate to these individual elements.

The spacing of the posts in a Post and Rail System is detailed in this Supplementary Standard and is dictated by the ability of the posts to accept the design loads. The maximum spanning capacity of the rails is often not realized because it is dictated by the post spacing.

A Cantilevered Picket System consists of a top rail that transfers horizontal loads to pickets. The pickets transfer the loads from the top rail to the floor system. An example of a Cantilevered Picket System is shown in Figure A-1.2.2.B.

A guard classified as a Post and Rail System or a Cantilevered Picket System need not always terminate at a post if:

- (a) The top rail is connected adequately to an element capable of accepting the forces applied to it, or
- (b) The guard changes direction and the rails are adequately fastened at the return.



**A-2.1.1. Lumber Grades.** Whereas Northern Species is specified as the minimum lumber grade, Spruce-Pine-Fir, Douglas Fir- Larch and Hem-Fir may also be used since their structural properties exceed those of Northern Species. Cedar rails within the classification of Northern Species Group.

**A-2.1.3. Floor Construction.** The lateral loads acting on a guard are transferred from either the posts or the pickets to the floor system. Therefore, the floor system must be sufficiently strong to transfer these loads.

**A-2.1.4. Connectors.** Pre-drilling of wood elements may be required in order to avoid splitting of structural wood elements.

Where a glued joint is required, an adhesive conforming to CSA Standard O112.4-M1977 (Polyvinyl Adhesives for Woods) and CSA Standard O112.8-M1977 (Polyvinyl Adhesives – Cross Linking, for Wood) is acceptable.

**A-2.1.5. Decay-Resistant Lumber.** Cedar is a species considered resistant to decay.