

DECK GUIDELINES

- Single level residential wood decks only. (Without roof loads)
- Decks supporting hot tubs shall be engineered.
- Decks supporting sunrooms shall be engineered
- All decks not meeting the specifications in the Prescriptive Residential Wood Deck Construction Guide shall be reviewed and approved by a licensed structural engineer. (available for download at www.awc.org)
- All deck post shall be 6x6 or larger with a max. height of 14'.
- All beams shall bear on top of the post and may overhang at each end up to $\frac{1}{4}$ of the beam span measured from post to post. (see figure 3 of the construction guide)
- Beams shall not be bolted to each side of the posts.
- Joist spans per Table 2 of the construction guide allows for a max. overhang of $\frac{1}{4}$ of the joist span.
- Joist shall not be attached to opposite sides of the same beam.
- Rim joist shall be connected with (3) #10 x 3" screws. (see figure 11 of the construction guide)
- Frost line depth is 36"
- Handrails are required for all stairs with 4 or more risers. Height is 34" to 38". They shall be continuous and graspable.
- Open risers are restricted to less than a 4" opening.
- Provide drawings specific to your deck. Use Figure 5 as an example of how the drawings should look and to provide the required information.
- Request a footing inspection prior to pouring concrete.
- Request an inspection prior to installing all of the decking.
- For questions call 309-XXXXXXXXXX or jkunski@cantoncityhall.org

303-8624

Table 4. Footing Sizes¹

Beam Span, L _b	Joist Span, L _j	Round Footing Diameter	Square Footing Dimension	Footing Thickness ²
6'	<10'	15"	13"	6"
	<14'	17"	15"	6"
	<18'	20"	18"	7"
8'	<10'	17"	15"	6"
	<14'	20"	18"	8"
	<18'	23"	21"	9"
10'	<10'	19"	17"	7"
	<14'	22"	20"	9"
	<18'	25"	23"	10"
12'	<10'	21"	19"	8"
	<14'	24"	22"	10"
	<18'	28"	26"	11"
14'	<10'	22"	20"	9"
	<14'	26"	24"	11"
	<18'	30"	28"	12"
16'	<10'	24"	22"	9"
	<14'	28"	26"	12"
	<18'	32"	30"	13"
18'	<10'	25"	23"	10"
	<14'	30"	28"	12"
	<18'	34"	32"	14"

1. Assumes 1,500 psf soil bearing capacity.
2. Assumes 2,500 psi compressive strength of concrete. Coordinate footing thickness with post-base and anchor requirements.

SIDING AND FLASHING: House siding or the exterior finish system must be removed prior to installation of the ledger board. Approved corrosion resistant flashing is required at any ledger board connection to a wall of wood framed construction (see MINIMUM REQUIREMENTS). See Figure 14 for continuous flashing with drip edge. The threshold shall be carefully flashed and caulked to prevent water intrusion due to splash from the deck or melting snow and ice.

LEDGER BOARD FASTENERS

Only those fasteners noted below are permitted. LEAD ANCHORS ARE PROHIBITED.

Deck ledger connection to band joist or rim board.
The connection between a deck ledger and a 2-inch

nominal lumber band joist (1-1/2" actual) or EWP rim board bearing on a sill plate or wall plate shall be constructed with 1/2" lag screws or bolts with washers per Table 5 and Figure 19 (see MINIMUM REQUIREMENTS).

Table 5. Fastener Spacing for a Southern Pine, Douglas Fir-Larch, or Hem-Fir Deck Ledger and a 2-inch Nominal Solid-Sawn Spruce-Pine-Fir^{7,9} Band Joist or EWP Rim Board⁶
(Deck Live Load = 40 psf, Deck Dead Load = 10 psf)^{5,6}

Joist Span	Rim Board or Band Joist	6'-0"	6'-1"	8'-1"	10'-1"	12'-1"	14'-1"	16'-1"
		and less	to 8'-0"	to 10'-0"	to 12'-0"	to 14'-0"	to 16'-0"	to 18'-0"
Connection Details		On-Center Spacing of Fasteners^{3,6}						
1/2" diameter lag screw with 1 1/32" maximum sheathing ¹	1" EWP ⁵	24"	18"	14"	12"	10"	9"	8"
	1-1/8" EWP ⁶	28"	21"	16"	14"	12"	10"	9"
	1-1/2" Lumber ^{7,8}	30"	23"	18"	15"	13"	11"	10"
1/2" diameter bolt with 1 5/32" maximum sheathing	1" EWP ⁵	24"	18"	14"	12"	10"	9"	8"
	1-1/8" EWP ⁶	28"	21"	18"	14"	12"	10"	9"
	1-1/2" Lumber ^{7,8}	36"	36"	34"	29"	24"	21"	19"
1/2" diameter bolt with 1 5/32" maximum sheathing and 1/2" stacked washers ^{2,9}	1" EWP ⁵	24"	18"	14"	12"	10"	9"	8"
	1-1/8" EWP ⁶	28"	21"	16"	14"	12"	10"	9"
	1-1/2" Lumber ^{7,8}	36"	36"	29"	24"	21"	18"	16"

- 1 The tip of the lag screw shall fully extend beyond the inside face of the band joist.
- 2 The maximum gap between the face of the ledger board and face of the wall sheathing shall be 1/2".
- 3 Ledgers shall be flashed or caulked to prevent water from contacting the house band joist (see Figures 14, 15, and 16).
- 4 Lag screws and bolts shall be staggered per Figure 19.
- 5 Deck ledgers shall be minimum 2x8 pressure-preservative-treated No.2 grade lumber, or other approved materials as established by standard engineering practice.
- 6 When solid-sawn pressure-preservative-treated deck ledgers are attached to engineered wood products (minimum 1" thick wood structural panel band joist or structural composite lumber including laminated veneer lumber), the ledger attachment shall be designed in accordance with accepted engineering practice. Tabulated values based on 300 lbs and 350 lbs for 1" and 1-1/8" EWP rim board, respectively.
- 7 A minimum 1"x2 1/2" Douglas fir-larch laminated veneer lumber rim board shall be permitted in lieu of the 2" nominal band joist.
- 8 Wood structural panel sheathing, gypsum board sheathing, or foam sheathing not exceeding one inch thickness shall be permitted. The maximum distance between the face of the ledger board and the face of the band joist shall be one inch.
- 9 Fastener spacing also applies to southern pine, Douglas fir-larch, and hem-fir band joists.

Table 2. Maximum Joist Spans (L_J)

Species	Size	Joist Spacing (o.c.)					
		Without Overhangs ¹			With Overhangs up to L _J /4 ²		
		12"	16"	24"	12"	16"	24"
Southern Pine	2x8	13' - 8"	12' - 5"	10' - 2"	10' - 9"	10' - 9"	10' - 2"
	2x10	17' - 5"	15' - 10"	13' - 1"	15' - 6"	15' - 6"	13' - 1"
	2x12	18' - 0"	18' - 0"	15' - 5"	18' - 0"	18' - 0"	15' - 5"
Douglas Fir, Larch, Hem-Fir, SPF ³	2x8	12' - 6"	11' - 1"	9' - 1"	9' - 5"	9' - 5"	9' - 1"
	2x10	15' - 8"	13' - 7"	11' - 1"	13' - 7"	13' - 7"	11' - 1"
	2x12	18' - 0"	15' - 9"	12' - 10"	18' - 0"	15' - 9"	12' - 10"
Redwood, Western Cedars, Ponderosa Pine ⁴ , Red Pine ⁴	2x8	11' - 8"	10' - 7"	8' - 8"	8' - 6"	8' - 6"	8' - 6"
	2x10	14' - 11"	13' - 0"	10' - 7"	12' - 3"	12' - 3"	10' - 7"
	2x12	17' - 5"	15' - 1"	12' - 4"	16' - 5"	15' - 1"	12' - 4"

1. Assumes 40 psf live load, 10 psf dead load, L/360 deflection, No. 2 grade, and wet service conditions. See Figure 1B.

2. Assumes 40 psf live load, 10 psf dead load, L/180 cantilever deflection with 220 lb point load, No. 2 grade, and wet service conditions. See Figure 1A and Figure 2.

3. Including assumed for refractory species including Douglas fir-larch, hem-fir, and spruce-pine-fir.

4. Design values based on northern species with no incising assumed.

Table 3. Deck Beam Spans (L_B)¹ for Joists Framing from One Side Only

Species	Size ⁴	Joist Spans (L _J) Less Than or Equal to:						
		6'	8'	10'	12'	14'	16'	18'
Southern Pine	2-2x6	7' - 1"	6' - 2"	5' - 6"	5' - 0"	4' - 8"	4' - 4"	4' - 1"
	2-2x8	9' - 2"	7' - 11"	7' - 1"	6' - 6"	6' - 0"	5' - 7"	5' - 3"
	2-2x10	11' - 10"	10' - 3"	9' - 2"	8' - 5"	7' - 9"	7' - 3"	6' - 10"
	2-2x12	13' - 11"	12' - 0"	10' - 9"	9' - 10"	9' - 1"	8' - 6"	8' - 0"
	3-2x6	8' - 7"	7' - 8"	6' - 11"	6' - 3"	5' - 10"	5' - 5"	5' - 2"
	3-2x8	11' - 4"	9' - 11"	8' - 11"	8' - 1"	7' - 6"	7' - 0"	6' - 7"
	3-2x10	14' - 8"	12' - 10"	11' - 6"	10' - 6"	9' - 9"	9' - 1"	8' - 7"
	3-2x12	17' - 5"	15' - 1"	13' - 6"	12' - 4"	11' - 5"	10' - 8"	10' - 1"
Douglas Fir, Larch ² , Hem-Fir ² , SPF ² , Redwood, Western Cedars, Ponderosa Pine ³ , Red Pine ³	3x6 or 2-2x6	5' - 5"	4' - 8"	4' - 2"	3' - 10"	3' - 6"	3' - 1"	2' - 9"
	3x8 or 2-2x8	6' - 10"	5' - 11"	5' - 4"	4' - 10"	4' - 6"	4' - 1"	3' - 8"
	3x10 or 2-2x10	8' - 4"	7' - 3"	6' - 6"	5' - 11"	5' - 6"	5' - 1"	4' - 8"
	3x12 or 2-2x12	9' - 8"	8' - 6"	7' - 6"	6' - 10"	6' - 4"	5' - 11"	5' - 7"
	4x6	6' - 5"	5' - 6"	4' - 11"	4' - 6"	4' - 2"	3' - 11"	3' - 8"
	4x8	8' - 5"	7' - 3"	6' - 8"	5' - 11"	5' - 6"	5' - 2"	4' - 10"
	4x10	9' - 11"	8' - 7"	7' - 8"	7' - 0"	6' - 6"	6' - 1"	5' - 8"
	4x12	11' - 5"	9' - 11"	8' - 10"	8' - 1"	7' - 6"	7' - 0"	6' - 7"
3-2x6	7' - 4"	6' - 8"	6' - 0"	5' - 6"	5' - 1"	4' - 9"	4' - 6"	
	3-2x8	9' - 8"	8' - 6"	7' - 7"	6' - 11"	6' - 5"	6' - 0"	5' - 8"
	3-2x10	12' - 0"	10' - 5"	9' - 4"	8' - 6"	7' - 10"	7' - 4"	6' - 11"
3-2x12	13' - 11"	12' - 1"	10' - 9"	9' - 10"	9' - 1"	8' - 6"	8' - 1"	

1. Assumes 40 psf live load, 10 psf dead load, L/360 simple span beam deflection limit, L/180 cantilever deflection limit, No. 2 grade, and wet service conditions.

2. Incising assumed for refractory species including Douglas fir-larch, hem-fir, and spruce-pine-fir.

3. Design values based on northern species with no incising assumed.

4. Beam depth must be equal to or greater than joist depth if joist hangers are used (see Figure 6, Option 3).

Figure 8, Post-to-Beam Attachment Requirements

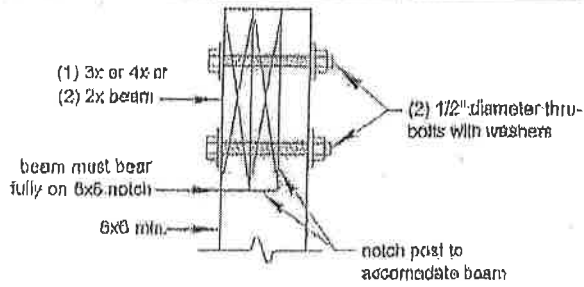
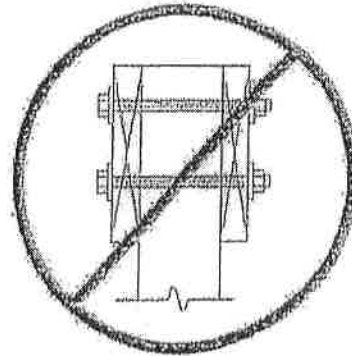


Figure 9, Prohibited Post-to-Beam Attachment Condition



RIM JOIST REQUIREMENTS

Attach a continuous rim joist to the ends of joists as shown in Figure 11. Attach decking to the rim joist as shown in Figure 11. For more decking attachment requirements, see DECKING REQUIREMENTS.

Figure 10, Alternate Approved Post-to-Beam Post Cap Attachment

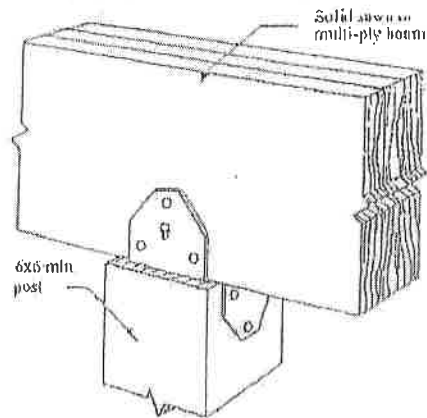
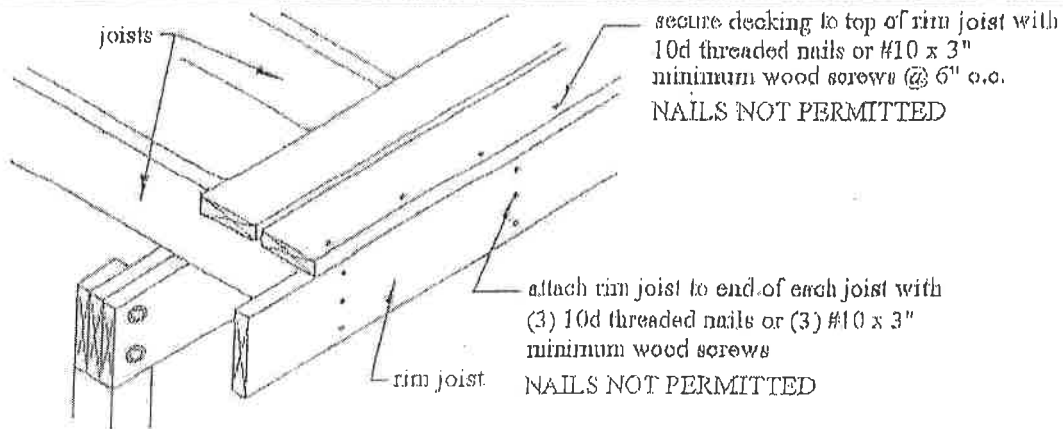


Figure 11, Rim Joist Connection Details



GUARD REQUIREMENTS

All decks greater than 30" above grade are required to have a guard [R312.1] - one example is shown in Figure

24. Other methods and materials may be used for guard construction when approved by the authority having jurisdiction.

Figure 24. Example Guard Detail

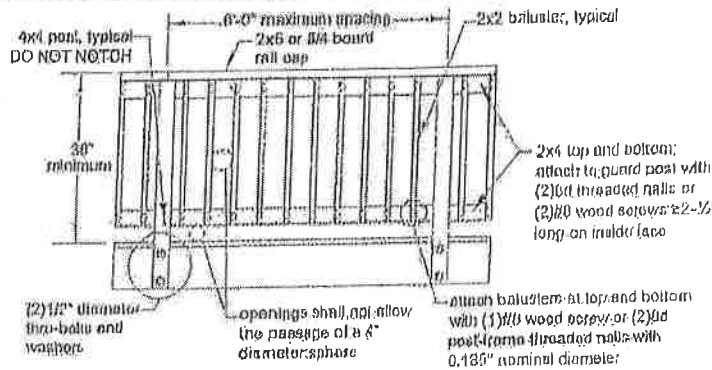


Figure 30. Stair Guard Requirements

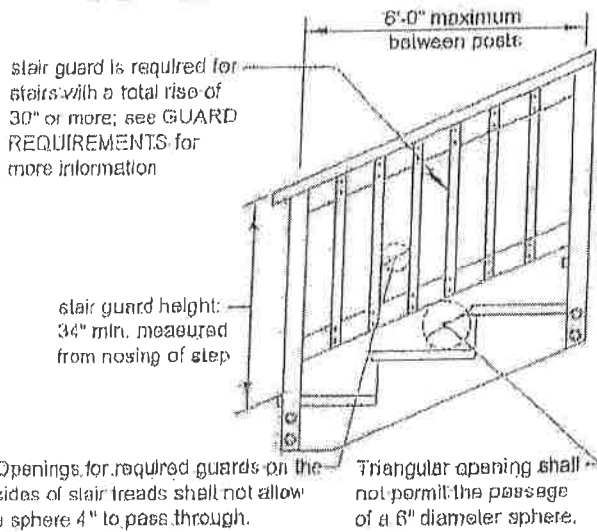


Figure 31. Stair Stringer Attachment Detail

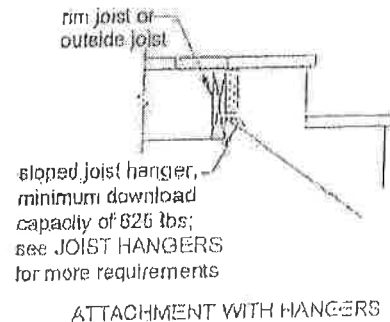


Figure 32A. Handrail Mounting Examples

Fasten handrails per manufacturer recommendations

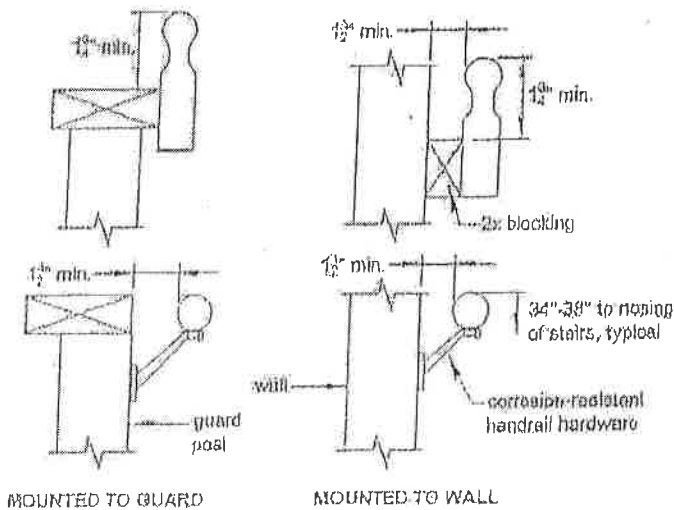


Figure 32B. Handrail Grip Size

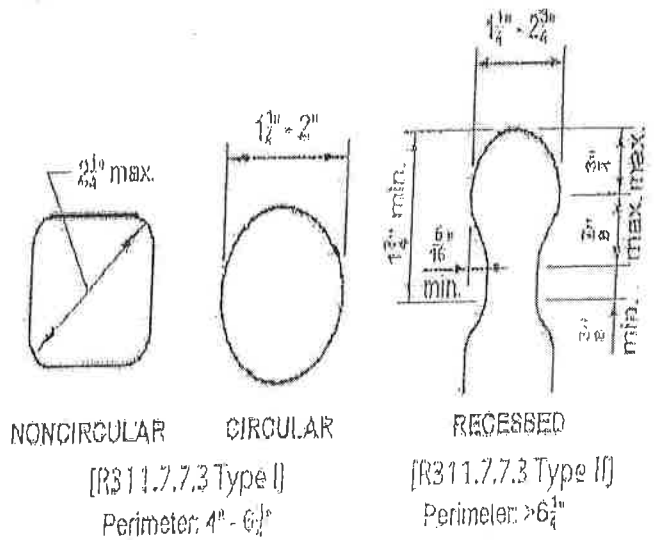


Figure 5. Typical Deck Framing Plan

