



BROCHURE # 110

RESIDENTIAL DECKS

PRESCRIPTIVE CONSTRUCTION DETAILS

When Do I Need a Permit?

| A permit is required if any of following conditions are true: | |
|--|---|
| Attached to building | ✓ |
| More than 30" above grade at any point | ✓ |
| More than 200 sf. | ✓ |
| Serves main entry door | ✓ |
| More than 18" for shoreline properties | ✓ |

The illustrations and information in this supporting document may be used for decks whether they require a permit or not. You may modify any component contained in the construction details included with this supporting document with justification by analysis or calculation.

Section 1 -- Before You Apply for Your Project

- ✓ Check with Department of Community Development staff or see Brochure #47 to determine your property's required setbacks.
- ✓ If the property is served by septic system, check with the Kitsap Public Health District at to identify the exact location of the property's septic system components including all drainfield reserve areas.
- ✓ If you hire someone to build your deck, they must be a registered contractor—it's the law in Washington State. To verify your contractor's information, contact the Washington State Department of Labor and Industries (phone: (360)415-4000; website: www.LNI.wa.gov).

Section 2 – Inspections

Inspectors visit the construction site during the project to make sure that it complies with building code requirements (see General Building Code Requirements, below). Most decks require a minimum of two inspections:

- ✓ Footing Inspection—Inspected after the holes are dug and rebar placed but prior to the pouring of concrete.
- ✓ Framing Inspection—Inspected after all framing, blocking and bracing are in place and prior to closing the construction so as to make it inaccessible for inspection. This inspection can be completed at the time of the final inspection if all parts of the framing will be visible and accessible at the final inspection.
- ✓ Final inspection to be made upon completion of the deck and finish grading.

The inspector may conduct one or more inspections during one visit if they can observe all work done. Additionally, the inspector may make or require other inspections to ascertain compliance with the provisions of the code.

Section 3 – Technically Complete Details

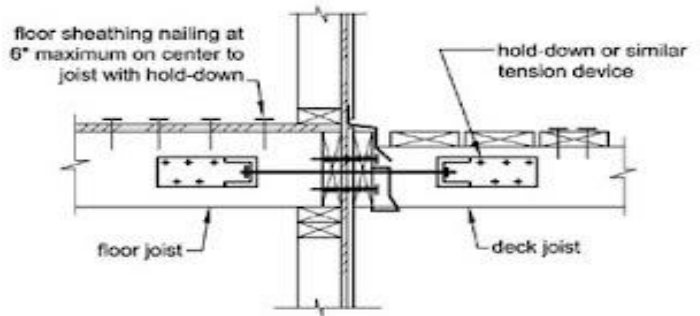
Detailed application requirements are noted below.

| Code Requirement | Code Reference |
|---|--|
| All wood must be pressure treated or of natural resistance to decay. | IRC R317.1 |
| Fasteners, hangers, nails, etc., must be stainless steel, hot-dipped galvanized, or as specifically required for the specified wood preservative used. | IRC R317.3.1 |
| Lateral connection is required to resist overturning | IRC R507.5.1 |
| Ledger boards must be attached with structural wood screws to the building and all connections between the deck and dwelling must be flashed with metal flashing. Hold-down tension ties shall be installed in not less than 2 locations. | IRC R507.2 IRC R507.2.4 |
| Joists are of appropriate size to support imposed loads. The span of a joist is measured from the centerline of bearing at one end of the joist to the centerline of bearing at the other end of the joist and does not include length of the overhangs. Use Table 1 to determine joist span based on lumber size and joist spacing. | IRC R507.5 |
| All decks, balconies or porches, open sides of landings and stairs which are more than 30" above grade or a floor below must be protected by a guardrail not less than 36" high (42" for commercial or common areas of multi-family dwellings). Open guardrails and stair railings require intermediate rails or an ornamental pattern such that a ball 4" in diameter cannot pass through. | IRC R312 |
| Footings are of appropriate size to support imposed loads and extend a minimum of 12" below grade. See Table 1 for footing sizes. | IRC 403.1.4 |
| Columns and posts exposed to the weather or to water splash must be supported by and connected to concrete piers or metal pedestals projecting above grade. Columns and posts in contact with the ground or embedded in concrete or masonry must be of special pressure treated wood approved for ground contact. | IRC R317.1.2 IRC R317.1.4 |
| Positive connections required to secure posts to beams. | IRC R507.7.1 |
| Decks should not overhang beams by more than ¼ the actual adjacent span, nor should beams overhang posts by more than ¼ the actual beam span at the ends unless a specific design is calculated. Floor joist spacing at 24" on center requires 2x decking, and floor joist spacing at 16" on center requires 1 ¼ actual thickness. | IRC R507.5 IRC R507.6 IRC R507.4 |
| Deck stairs (exterior stairways) shall be provided with a source of illumination at the top landing, controlled from within the dwelling or by automatic means. | IRC R303.8 |

Section 4 – Prescriptive Construction Drawings

Construction Details

___x___ Joist
 ___ Joist spacing
 ___x___ Support Beam(s)
 ___x___ Support Post(s)
 ___ Post Spacing
 Footing Size:
 Round: ___
 Square: ___x___ by ___ deep



Lateral Connection Detail
 IRC Figure R502.2.2.3

Deck supports or footings may not bear directly **on top** of septic system components.

If the deck is located **over** the septic system, ensure access to septic lids and ports. Contact Kitsap Public Health for assistance 360-728-2235.

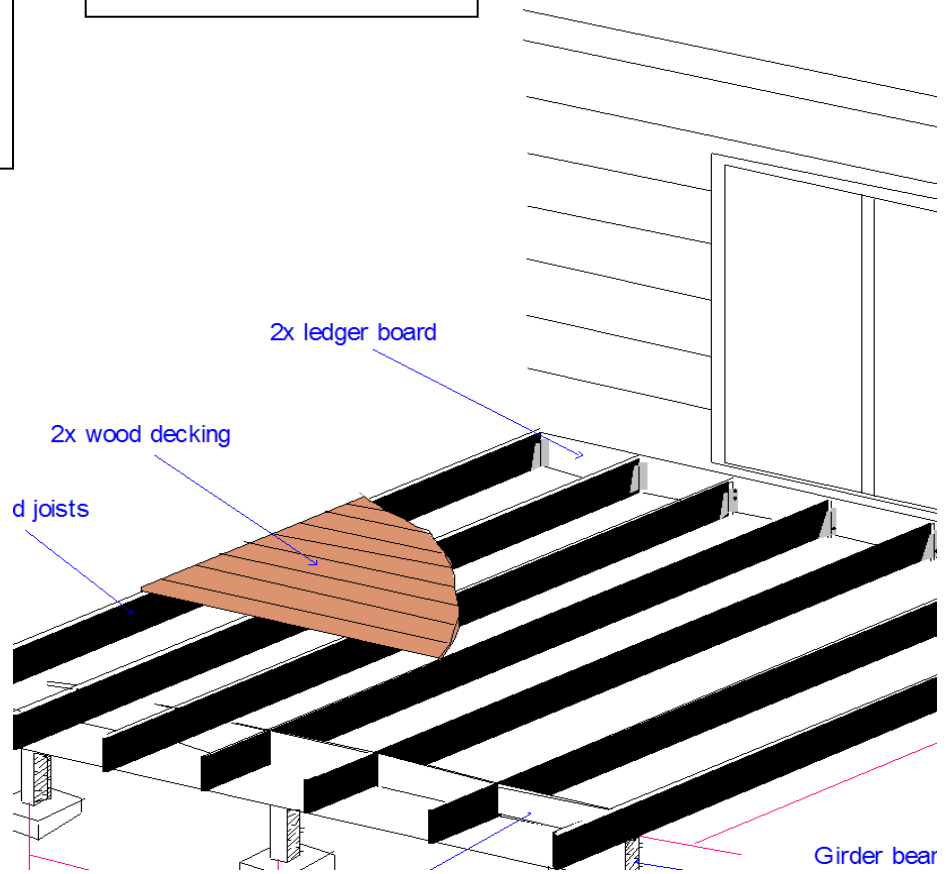


Table 1

| Footing Sizes | | | | |
|----------------------|---------------|------------------------|---------------------------|--------------------------------|
| Beam Span, LB | Joist Span LJ | Round Footing Diameter | Square Footing Dimensions | 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" |

Notes

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.
3. No 12" x 12" preformed pier blocks allowed.
4. Post sizes are dictated by beam size. Required 4x beam requires 4x4 post, 6x beam requires 6x6 post.
5. Footing to be 12" below grade minimum.
6. Footing to have a minimum of (2) #4 rebar each way, 3-4" from bottom of the footing.

Table 2

| Deck Beam Spans (LB)¹ for Joists Framing from One Side Only | | | | | | | | |
|---|------------------|---|--------|---------|--------|--------|--------|--------|
| | | Joist Spans (LJ) Less Than or Equal to: | | | | | | |
| Species | Size | 6' | 8' | 10' | 12' | 14' | 16' | 18' |
| Douglas Fir-Larch, Hem-Fir, SPF3 | 3x6 or (2) 2x6 | 5'-5" | 4'-5" | 3'-6" | 2'-11" | 2'-6" | 2'-2" | 1'-11" |
| | 3x8 or (2) 2x8 | 7'-3" | 5'-9" | 4'-8" | 3'-10" | 3'-4" | 2'-11" | 2'-7" |
| | 3x10 or (2) 2x10 | 8'-11" | 7'-5" | 5'-11" | 4'-11" | 4'-3" | 3'-8" | 3'-3" |
| | 3x12 or (2) 2x12 | 10'-4" | 8'-11" | 7'-2" | 6'-0" | 5'-2" | 4'-6" | 4'-0" |
| | 4x6 | 6'-3" | 5'-11" | 4'-11" | 4'-1" | 3'-6" | 3'-1" | 2'-9" |
| | 4x8 | 8'-9" | 7'-9" | 6'-6" | 5'-5" | 4'-8" | 4'-1" | 3'-7" |
| | 4x10 | 11'-0" | 9'-6" | 8'-3" | 6'-11" | 5'-11" | 5'-2" | 4'-7" |
| | 4x12 | 12'-10" | 11'-1" | 10'-0" | 8'-5" | 7'-2" | 6'-3" | 5'-7" |
| | (3) 2x6 | 6'-11" | 6'-6" | 6'-1" | 5'-3" | 4'-6" | 3'-11" | 3'-6" |
| | (3) 2x8 | 9'-8" | 8'-6" | 7'-8" | 6'-11" | 5'-11" | 5'-3" | 4'-8" |
| | (3) 2x10 | 11'-11" | 10'-4" | 9'-4" | 8'-5" | 7'-7" | 6'-8" | 5'-11" |
| | (3) 2x12 | 13'-10" | 12'-0" | 10'-10" | 9'-10" | 9'-1" | 8'-1" | 7'-2" |

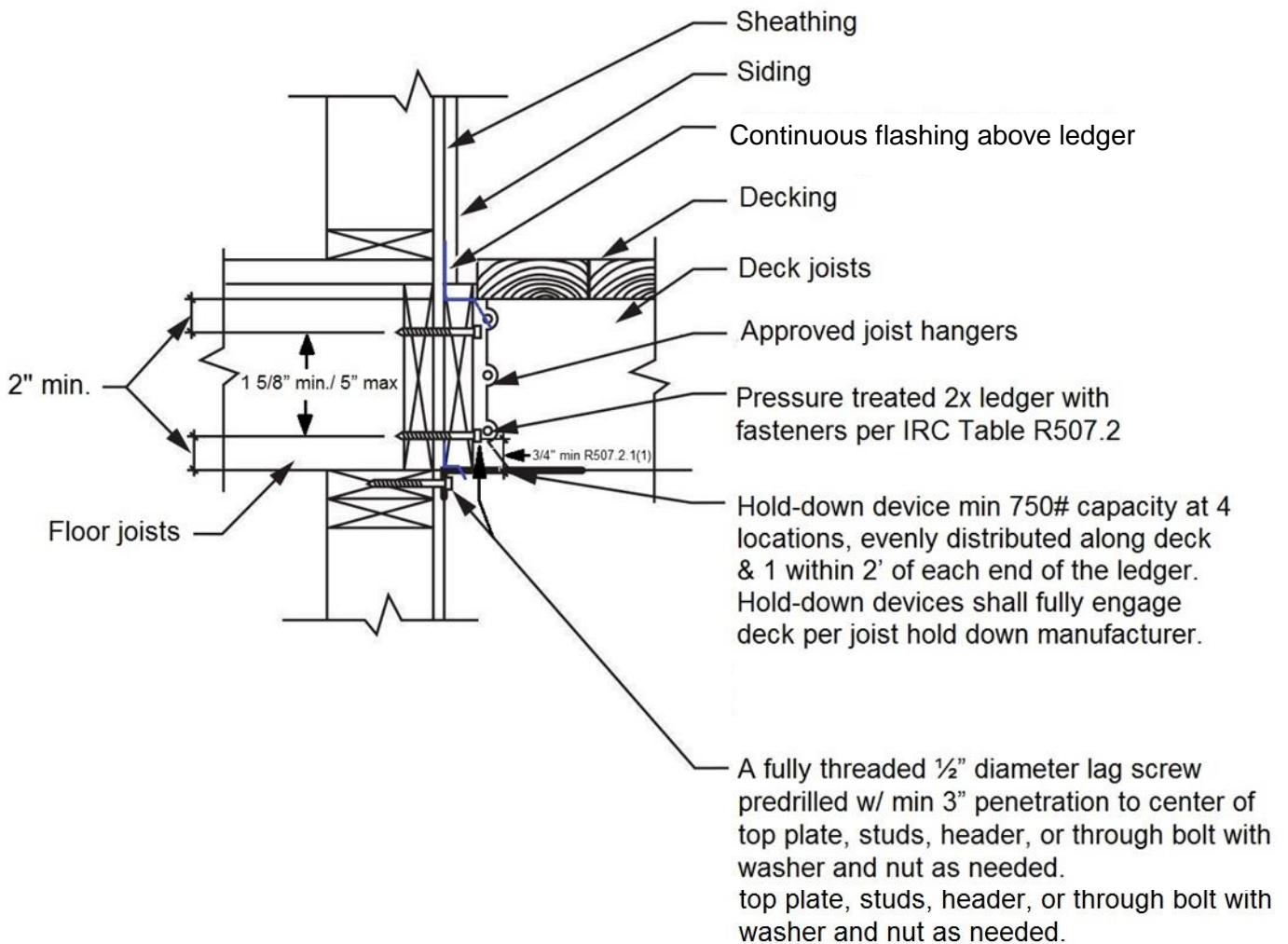


Table 3

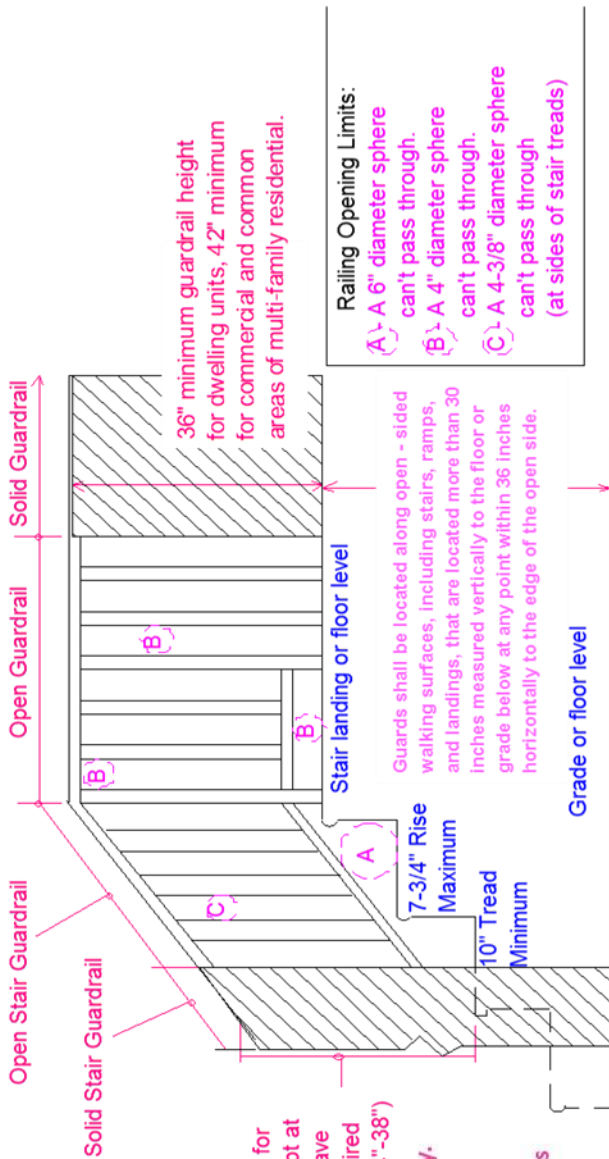
| Maximum Joist Spans | | Joist Spacing (o.c) | | | | | |
|----------------------------------|------|--------------------------------|--------|---------|----------------------------|--------|---------|
| | | Without Overhangs ¹ | | | With Overhangs up to LJ/42 | | |
| Species | Size | 12" | 16" | 24" | 12" | 16" | 24" |
| Douglas Fir-Larch, Hem-Fir, SPF3 | 2x6 | 8'-1" | 7'-0" | 5'-9" | 7'-5" | 6'-9" | 5'-9" |
| | 2x8 | 10'-10" | 9'-5" | 7'-8" | 9'-7" | 8'-8" | 7'-7" |
| | 2x10 | 13'-3" | 11'-6" | 9'-4" | 13'-3" | 11'-6" | 9'-5" |
| | 2x12 | 15'-4" | 13'-4" | 10'-10" | 15'-5" | 13'-4" | 10'-11" |

1. Assumes 60 PSF live load, 10 PSF dead load, L/360 deflection, #2 grade, and wet service conditions.
2. Assumes 60 PSF live load, 10 PSF dead load, L/180 cantilever deflection with 220 lb. point load, #2 grade, and wet service conditions.
3. Incising assumed for refractory species including Douglas Fir-Larch, Hem-Fir, and Spruce-Pine-Fir.

Standard Deck Connection Details



Stair & Railing Detail



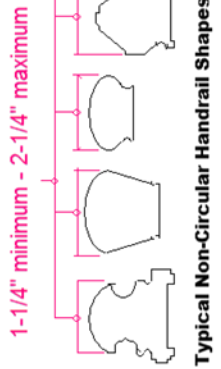
Top of guardrail for stairways, except at landings, may have a height as required for handrails (34"-38")

Landing is required at bottom of each stairway. The width perpendicular to the direction of travel shall be not less than the width of less than the width of the flight served and not less than 36" in the direction of travel

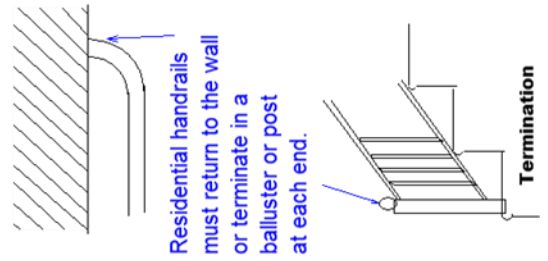
Railing Opening Limits:
 (A) A 6" diameter sphere can't pass through.
 (B) A 4" diameter sphere can't pass through.
 (C) A 4-3/8" diameter sphere can't pass through (at sides of stair treads)

Guards shall be located along open - sided walking surfaces, including stairs, ramps, and landings, that are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches horizontally to the edge of the open side.

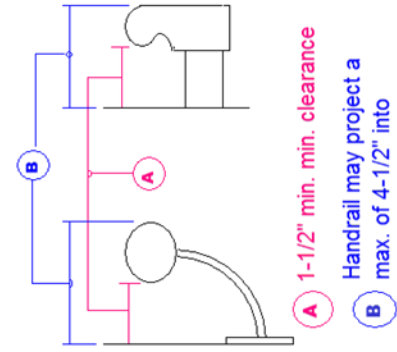
Handrail extensions are required on commercial and common areas of multi-family buildings. The extension length shall be at least 12" horizontally beyond the top riser and shall continue to slope for the depth of one tread beyond the bottom riser.



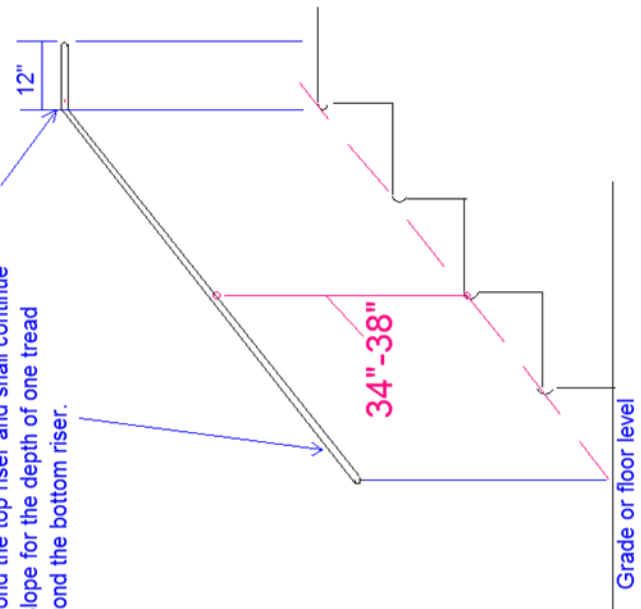
Typical Non-Circular Handrail Shapes



Termination



Wall Clearance



Handrail Height and Extensions

Section 5 – Site Plan

You may submit your own site plan or draw it on this template. Site plans must include (at a minimum) the following:

- ✓ Property Lines
- ✓ All existing structures
- ✓ Location of septic components (main field, reserve field and tanks) and infiltration pits (if applicable)
- ✓ Location of proposed deck
- ✓ Dimension lines from deck to all property lines OR plan drawn to scale

| Required Setbacks | Front | Side & Rear |
|-------------------|-------|-------------|
| Urban Zones | 20' | 5' |
| Rural Zones* | 50' | 20' |

*If the property is less than one (1) acre or the lot is narrower than 140' along the front property line, Urban Zone setbacks apply

If you are in a Plat or Short Plat, please verify whether you have additional setback requirements to consider from easements and/or buffers BEFORE applying for your permit. If you are unsure of your setback requirements, please verify with DCD staff.

Scale: 1 square = 10 feet (1" = 40')

