

Building Guide

Colorado Chapter of the International Code Council

Single Family Residential Uncovered Decks and Porches

How to Use this Guide

Provide one set of plans, drawn to scale and complete the following (hint: use graph paper with $\frac{1}{4}$ " squares. Example: $\frac{1}{4}$ " = 1'): Check with your jurisdiction for additional requirements.

- 1. Complete this Building Guide by filling in the blanks on page two, and indicating which construction details will be used.
- 2. Provide 1 Plot Plan (site plan) showing dimensions of your project or addition and its relationship to existing buildings or structures on the property and the distance to existing property lines drawn to scale. See page 3.
- 3. Fill out a building permit application.

The majority of permit applications are processed with little delay. The submitted documents will help determine if the project is in compliance with building safety codes, zoning ordinances and other applicable laws.

The Colorado Chapter of the International Code Council is a professional organization seeking to promote the public health, safety and welfare to building construction. We appreciate your feedback and suggestions. To obtain a master copy of this building guide, please write to the Colorado Chapter of the International Code Council, P.O. Box 961. Arvada, CO 80001.

http://www.coloradochaptericc.org

This handout was developed by the Colorado Chapter of the International Code Council as a basic plan submittal under the 2012 International Residential Code. It is not intended to cover all circumstances. Check with your Department of Building Safety for additional requirements.





Building Division

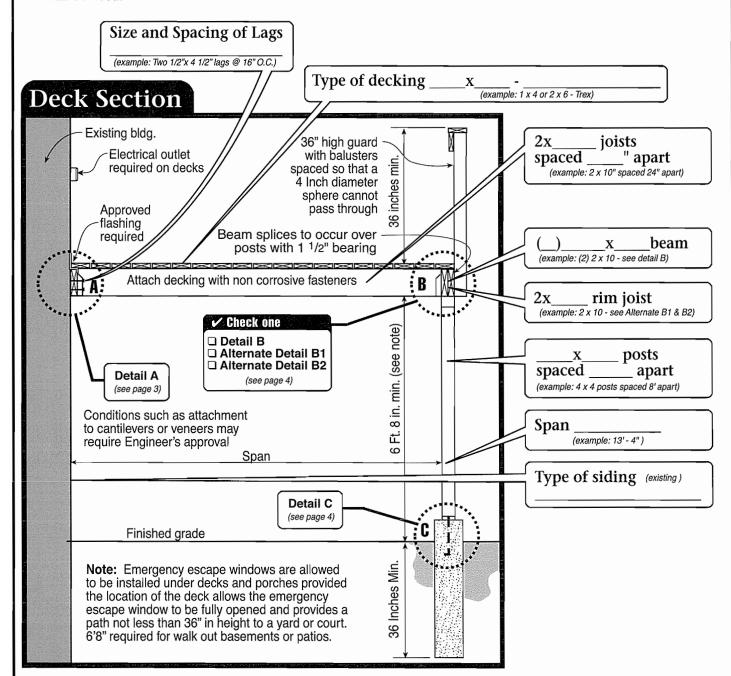
1 DesCombes Drive Broomfield, CO 80020

Community Development PHONE: 303.438.6370 FAX: 303.438.6207 www.broomfield.org

Single Family Residential Uncovered Decks and Porches **Directions**

- **1.** Fill in the blanks. Please print legibly.
- **2.** Indicate in the check box which detail from page 4 will be used.

Address:



Note: A plot plan (plan view) showing the dimensions of your project or additions and its relationships to existing buildings or structures on the property must be included. In addition to project dimensions, your plot plan must also show other details such as post locations and spacing, joist and beam spans, and any other pertinent information not shown on the section drawing.

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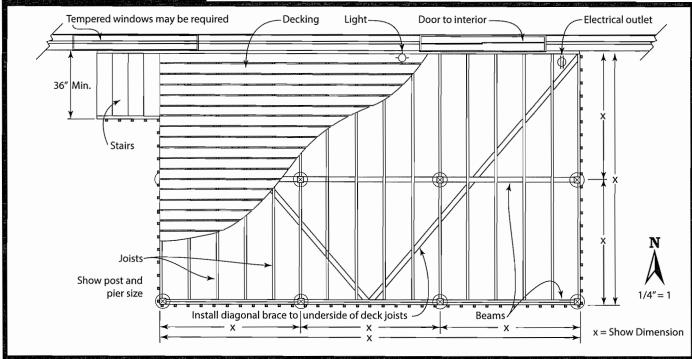
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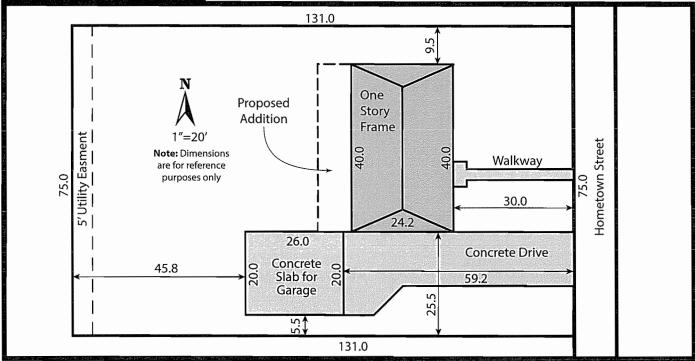
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Plan View Example



Site Plan Example



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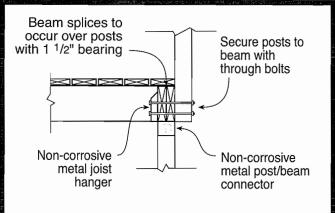
Detail A

Attach to joists with non-corrosive fasteners

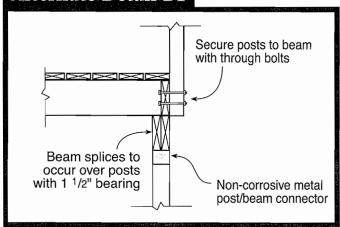
Attach ledger to existing bldg.
with non-corrosive fasteners.
Locate fasteners to penetrate rim joist or wall studs.

Non-corrosive metal joist hanger
Approved flashing
Conditions such as attachment to cantilevers or veneers may require Engineer's approval

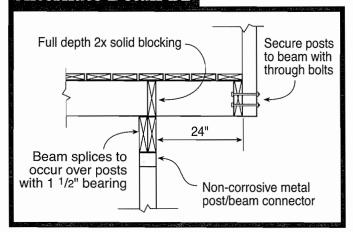
Detail B



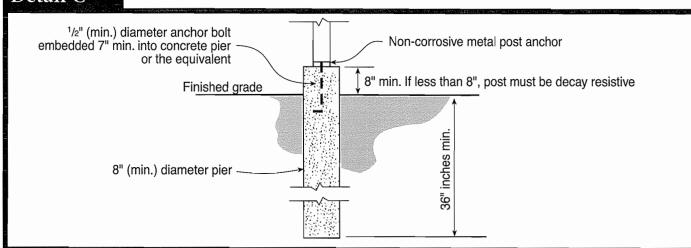
Alternate Detail B1



Alternate Detail B2



Detail C



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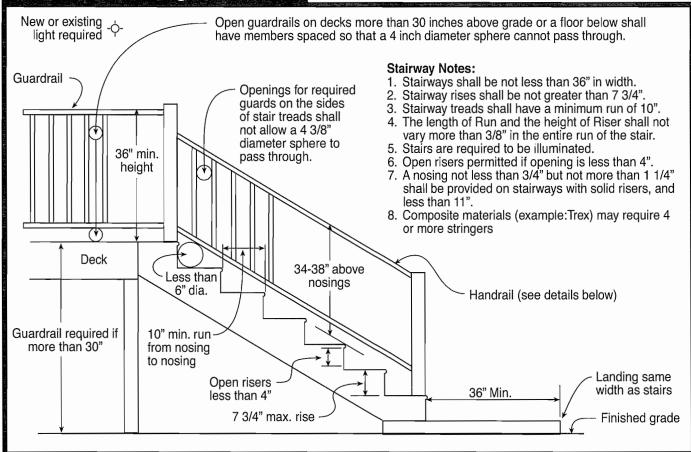
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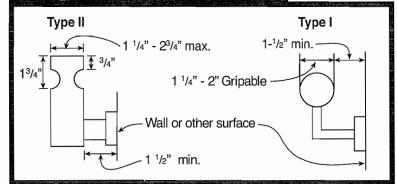
Stair & Handrail Specifications



Handrail Notes:

- 1. Handrails shall be continuous on at least one side of stairs with 4 or more risers.
- 2. Top of the handrails shall be placed not less than 34 inches nor more than 38 inches above stair nosings.
- 3. The handgrip portion of handrails shall be not less than 1-1/4 inches nor more than 2 1/4 inches in cross section for non circular handrails.
- 4. Handrails shall be placed not less than 1-1/2 inches from any wall or other surface.
- 5. Handrails to be returned to wall, post or safety terminal (per 311.7.8.2 IRC)

Acceptable Handrail Details



Unacceptable Handrails

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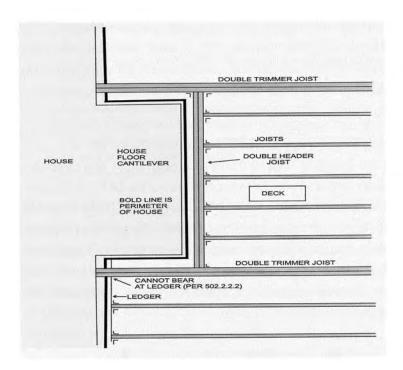
CITY & COUNTY OF BROOMFIELD RESIDENTIAL DECK PLAN REVIEW & PERMIT CONDITIONS

These comments and approved plans must be on site to receive any inspections.

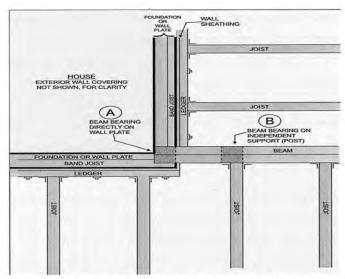
Deviation from the approved plans will require revised plans to be submitted for additional review and approval prior to receiving inspections.

- 1. It is the owner's responsibility to obtain any Home Owners' Association and/or Architectural Control Committee approvals that may be applicable.
- 2. Deck ledgers shall be properly anchored to the house wall studs or to the rim joist by through bolts with nuts and washers or by compliant lag screws. See "Building Guide" for details of required flashing at the ledger. Masonry veneer, manufactured stone, and cantilevered floors are not suitable for deck support.
- 3. Laminated wood beams shall be protected from the weather unless tested for exposure.
- 4. Deck joists are to have compliant joist hangers and compliant fasteners at the ledger and rim joists. Use nails designed for the purpose. **Do not use roofing nails, screws, etc.**
- 5. Connectors such as hangers, caps, bases, and all fasteners shall be hot-dipped galvanized for use with pressure treated lumber.
- 6. Deck joists that cantilever more than 10 inches over beams shall have solid blocking at the support and a full depth rim joist at the ends. Hangers at ledger shall provide the required uplift resistance. Cantilevered deck joists more than 5 feet above grade shall be attached to the beam with hurricane clips or straps to resist wind uplift.
- 7. Deck posts are to be mechanically anchored to the caissons and to the beam above. Use post caps, strapping, or brackets designed for this purpose.
- 8. The framing system shall be inspected prior to concealment. All joists and beams shall have 1½ inches of full bearing. Call for a rough frame inspection prior to decking for all decks less than 5 feet above grade.
- 9. Each basement is required to have at least one emergency escape and rescue opening directly to an exterior yard. If an existing sleeping room or basement has its only emergency escape/rescue window or door located below the proposed new deck, the deck shall not cover or obstruct the required window well opening. A grate or cover is permitted provided that it is openable from the inside without the use of a key, or any special knowledge or force more than required for the window. A ladder may be required if the deck increases the effective depth of the window well to more than 44 inches.
- 10. Glazing closer than 5 feet from stairs and landings shall comply with IRC Section R308; safety glazing may be required.
- 11. A solid, level landing that is at least as wide as the steps, but not less than 36" x 36" shall be provided at the bottom of the steps. Landings may slope a maximum of ¼ inch per foot. Complying handrails are required when there are 4 or more risers. See attached "Building Guide" for stair requirements.
- 12. Composite decking material shall have a valid evaluation report, and installation shall comply with the manufacturer's requirements.
- 13. New or additional deck areas shall be provided with at least one receptacle outlet located within the perimeter of the deck or porch, not more than 6 ½ feet above the floor.
- 14. Deck has been reviewed to meet the minimum requirements of the IRC, and has not been reviewed for any additional loads imposed by planters, hot tubs, etc. Please refer to the attached "Building Guide" for decks for additional information.

Example of deck framing around house cantilever.



Example of beam framing to foundation, not to ledger.



Example 4-16: This example is a typical deck frame constructed around the outside corner of an existing structure. The beam used to carry the joists on one side of the deck cannot be attached to the ledger or band joist. Option "A" shows the beam extending into the existing structure and resting on the foundation or wall plate below, while "B" depicts an independent support provided underneath the beam, such as a post and/or pier.

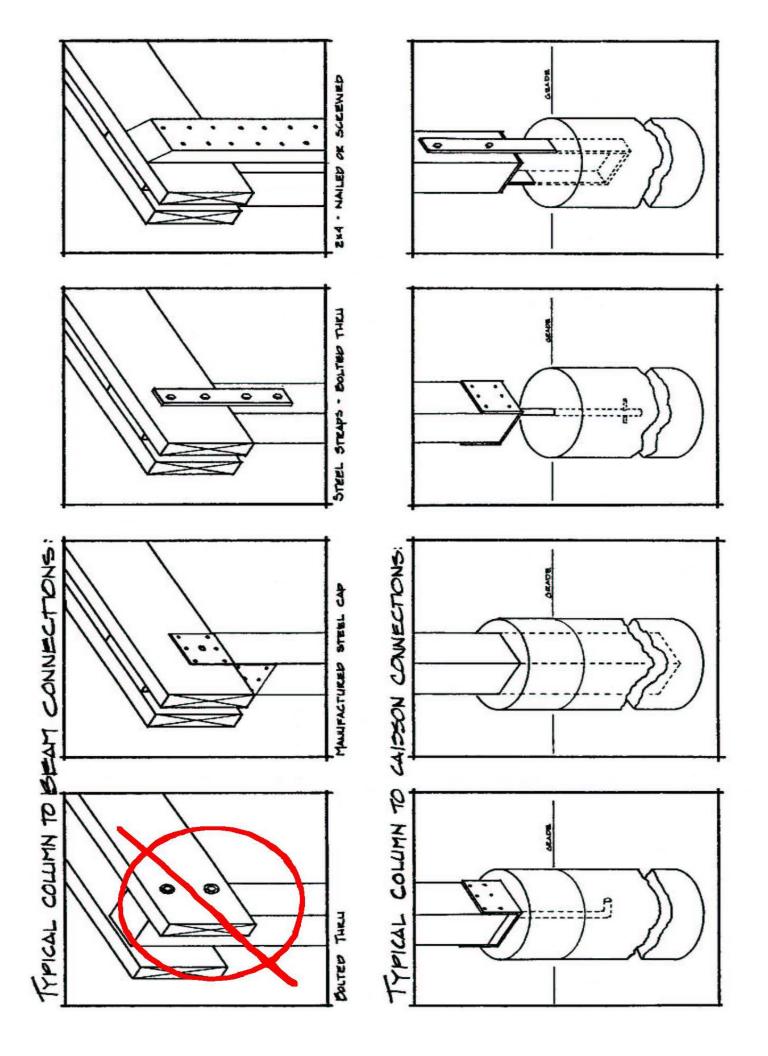


TABLE R507.2 FASTENER SPACING FOR A SOUTHERN PINE OR HEM-FIR DECK LEDGER AND A 2-INCH-NOMINAL SOLID-SAWN SPRUCE-PINE-FIR BAND JOIST^{c, f, g} (Deck live load = 40 psf, deck dead load = 10 psf)

JOIST SPAN	6' and less	6'1" to 8'	8'1" to 10'	10'1" to 12'	12'1" to 14'	14'1" to 16'	16'1" to 18'
Connection details	On-center spacing of fasteners ^{d, e}						
$^{1}\!/_{2}$ inch diameter lag screw with $^{15}\!/_{32}$ inch maximum sheathing a	30	23	18	15	13	11	10
$^{1}\!/_{2}$ inch diameter bolt with $^{15}\!/_{32}$ inch maximum sheathing	36	36	34	29	24	21	19
$^{1}\!/_{2}$ inch diameter bolt with $^{15}\!/_{32}$ inch maximum sheathing and $^{1}\!/_{2}$ inch stacked washers $^{\rm b.h}$	36	36	29	24	21	18	16

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm. 1 pound per square foot = 0.0479 kPa.

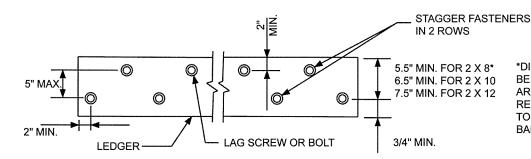
- a. The tip of the lag screw shall fully extend beyond the inside face of the band joist.
- b. The maximum gap between the face of the ledger board and face of the wall sheathing shall be 1/2 inch.
- c. Ledgers shall be flashed to prevent water from contacting the house band joist.
- d. Lag screws and bolts shall be staggered in accordance with Section R507.2.1.
- e. Deck ledger shall be minimum 2×8 pressure-preservative-treated No. 2 grade lumber, or other approved materials as established by standard engineering practice.
- f. When solid-sawn pressure-preservative-treated deck ledgers are attached to a minimum 1-inch-thick engineered wood product (structural composite lumber, laminated veneer lumber or wood structural panel band joist), the ledger attachment shall be designed in accordance with accepted engineering practice.
- g. A minimum 1×9^{1} /, Douglas Fir laminated veneer lumber rimboard shall be permitted in lieu of the 2-inch nominal band joist.
- h. Wood structural panel sheathing, gypsum board sheathing or foam sheathing not exceeding 1 inch in thickness shall be permitted. The maximum distance between the face of the ledger board and the face of the band joist shall be 1 inch.

TABLE 507.2.1 PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS

MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS							
	TOP EDGE	BOTTOM EDGE	ENDS	ROW SPACING			
Ledgera	2 inches ^d	³ / ₄ inch	2 inches ^b	1 ⁵ / ₈ inches ^b			
Band Joist ^c	3/ ₄ inch	2 inches	2 inches ^b	1 ⁵ / ₈ inches ^b			

For SI: 1 inch = 25.4 mm.

- a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.2.1(1).
- b. Maximum 5 inches.
- c. For engineered rim joists, the manufacturer's recommendations shall govern.
- d. The minimum distance from bottom row of lag screws or bolts to the top edge of the ledger shall be in accordance with Figure R507.2.1(1).



*DISTANCE SHALL BE PERMITTED TO BE REDUCED TO 4.5" IF LAG SCREWS ARE USED OR BOLT SPACING IS REDUCED TO THAT OF LAG SCREWS TO ATTACH 2 X 8 LEDGERS TO 2 X 8 BAND JOISTS.

For SI: 1 inch = 25.4 mm.

FIGURE R507.2.1(1)
PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS

Glazing where the bottom exposed edge of the glazing is less than 60 inches above and adjacent walking surface of stairways, landings between flights of stairs and ramps shall be safety glazing. Glazing adjacent to the landing at the bottom of a stairway where the glazing is less than 60 inches above the landing and within 60 inches horizontally of the bottom tread shall be safety glazing. See IRC Sections R308.4.6 and R308.4.7.

