



# Building Guide

Colorado Chapter of the International Code Council

## Single Family Residential Uncovered Decks and Porches

### How to Use this Guide

Provide two sets of plans, drawn to scale and complete the following (*hint: use graph paper with 1/4" squares. Example: 1/4" = 1'*):

- 1. Complete this Building Guide** by filling in the blanks on page two, and indicating which construction details will be used.
- 2. Provide 2 Plot Plans** (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.
- 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 2009 International Residential Code. It is not intended to cover all circumstances. Check with your Department of Building Safety for additional requirements.



### Building Division

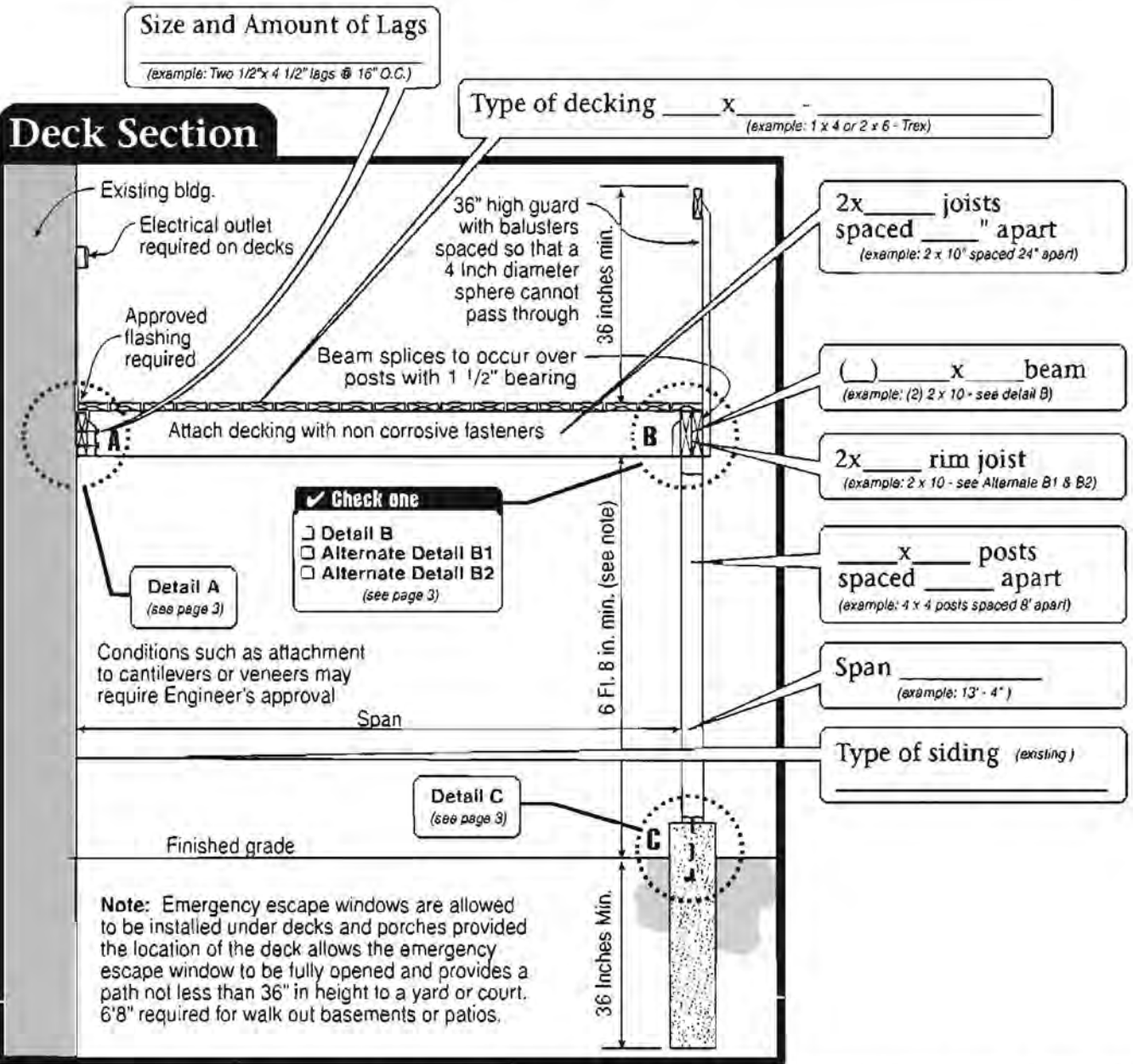
Community Development PHONE: 303.438.6370  
1 DesCombes Drive FAX: 303.438.6207  
Broomfield, CO 80020 [www.broomfield.org](http://www.broomfield.org)

# 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 3 will be used.

Address: \_\_\_\_\_



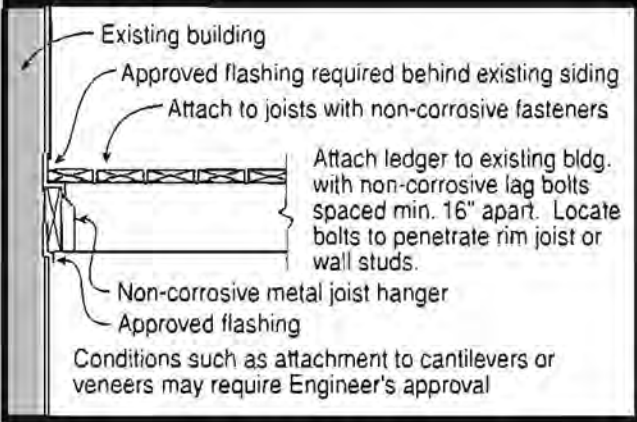
**Note:** A plot plan (plan view) showing the dimensions of your project or additions and its relationships to existing buildings or structures on the property must be included. In addition to project dimensions, your plot plan must also show other details such as post locations and spacing, joist and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

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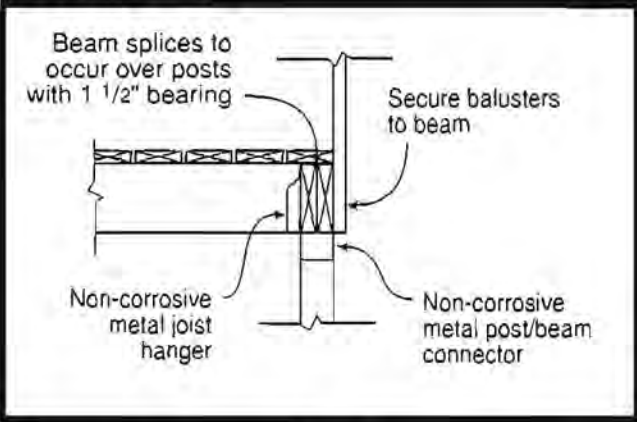
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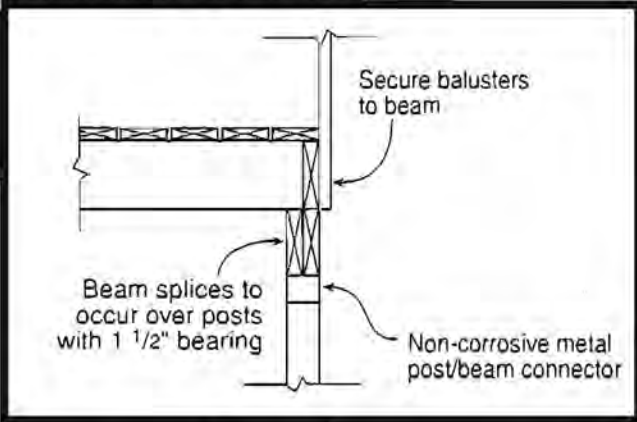
## Detail A



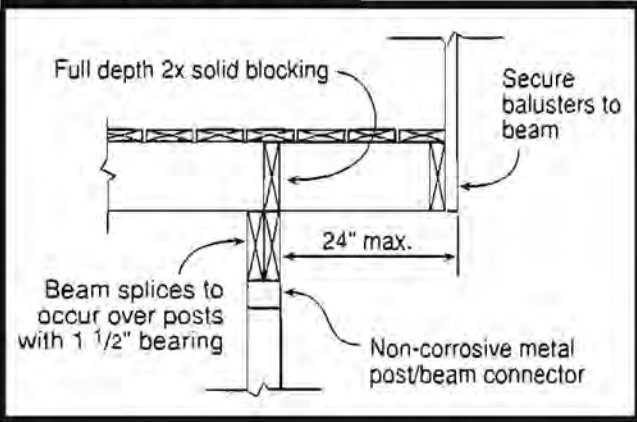
## Detail B



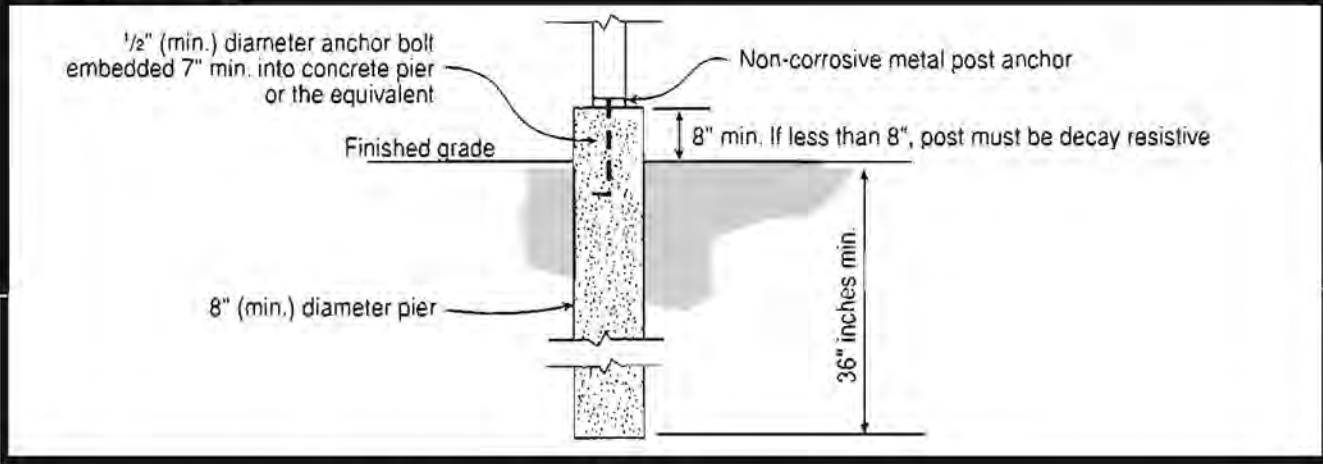
## Alternate Detail B1



## Alternate Detail B2



## Detail C



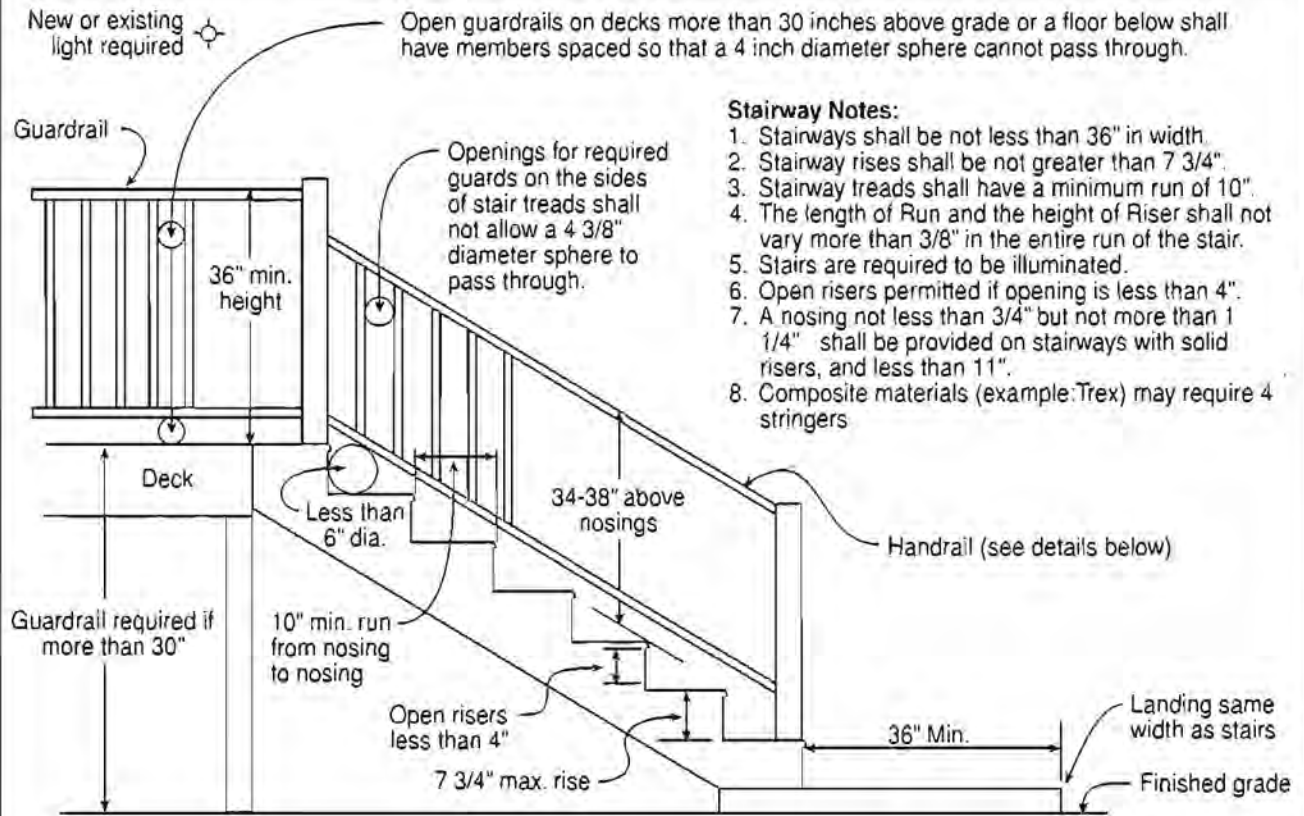
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# Single Family Residential Uncovered Decks and Porches

## Stair & Handrail Specifications



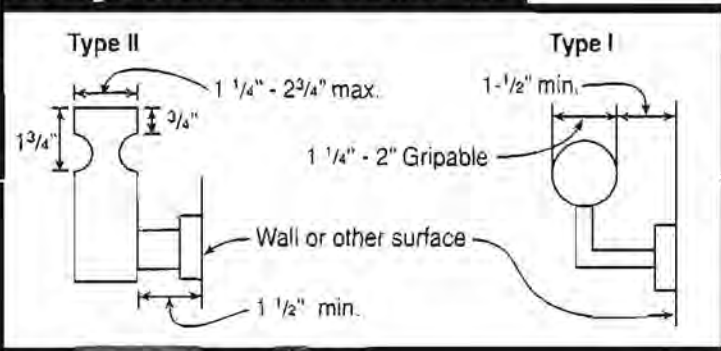
### Stairway Notes:

1. Stairways shall be not less than 36" in width.
2. Stairway rises shall be not greater than 7 3/4".
3. Stairway treads shall have a minimum run of 10".
4. The length of Run and the height of Riser shall not vary more than 3/8" in the entire run of the stair.
5. Stairs are required to be illuminated.
6. Open risers permitted if opening is less than 4".
7. A nosing not less than 3/4" but not more than 1 1/4" shall be provided on stairways with solid risers, and less than 11".
8. Composite materials (example:Trex) may require 4 stringers

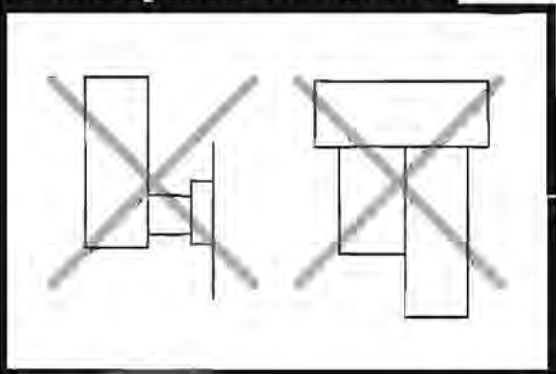
### Handrail Notes:

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 311.7.7.2 IRC)

## Acceptable Handrail Details



## Unacceptable Handrails



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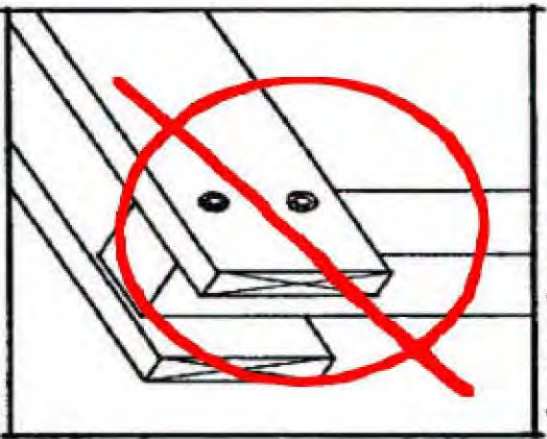
**CITY & COUNTY OF BROOMFIELD**  
**RESIDENTIAL DECK PLAN REVIEW & PERMIT CONDITIONS**

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

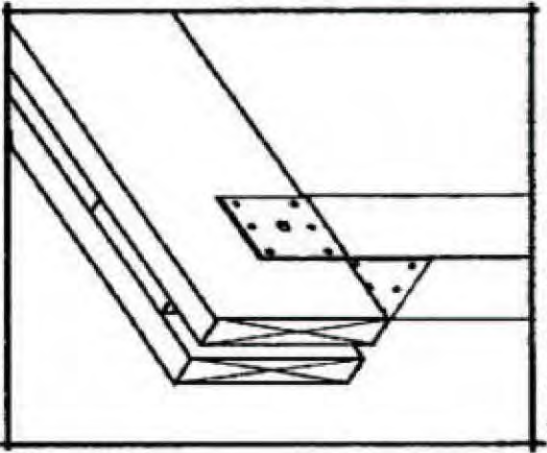
**Deviation from the approved plans will require revised plans to be submitted for additional review and approval prior to receiving inspections.**

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, synthetic stucco, 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. 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.
6. 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.
7. **Connectors such as hangers, caps, bases, and all fasteners shall be hot-dipped galvanized for use with pressure treated lumber.**
8. The framing system shall be inspected prior to concealment. 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/rescue window or door that opens 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. 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. Complying handrails are required when there are 4 or more risers. Glazing near stairs and landings shall comply with IRC Section R308. See attached "Building Guide" for stair requirements.
11. Composite decking material shall have a valid evaluation report, and installation shall comply with the manufacturer's requirements.
12. 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.
13. 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.
14. Please refer to the attached "Building Guide" for decks for additional information.

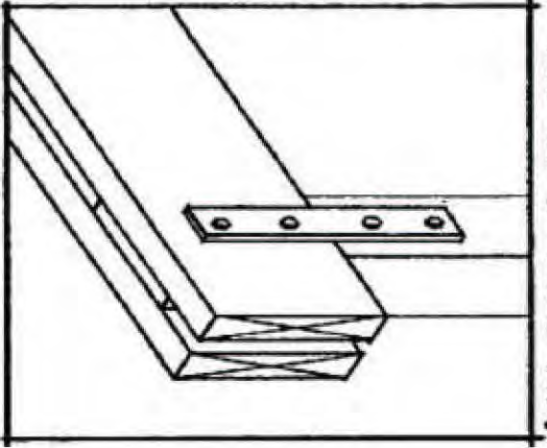
TYPICAL COLUMN TO BEAM CONNECTIONS:



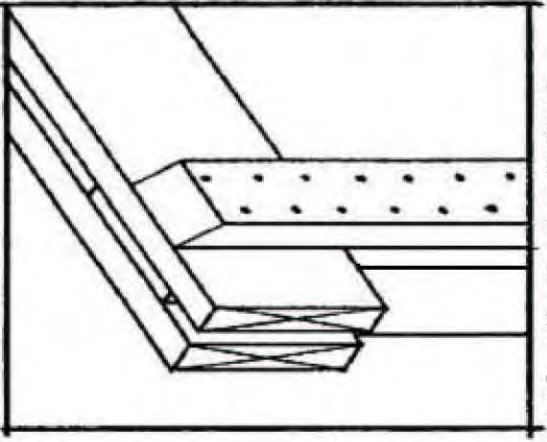
BOLTED THRU



MANUFACTURED STEEL CAP

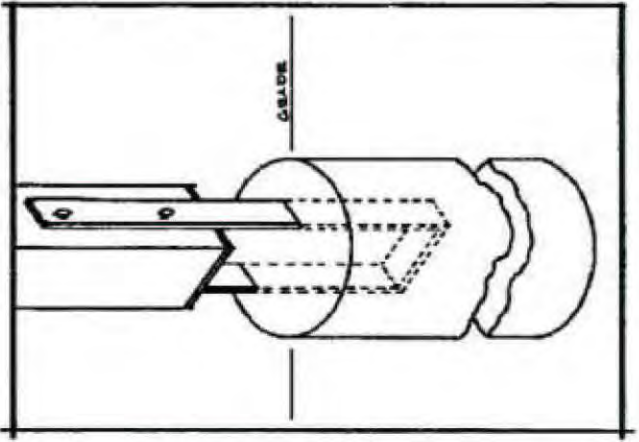
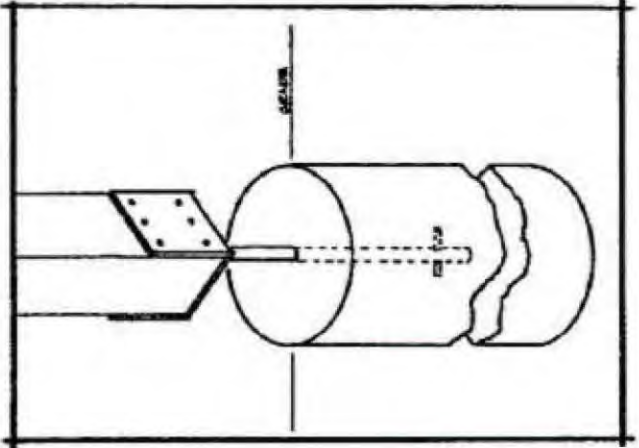
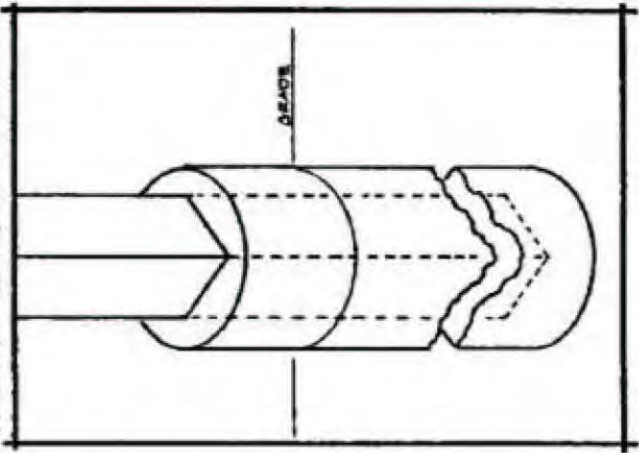
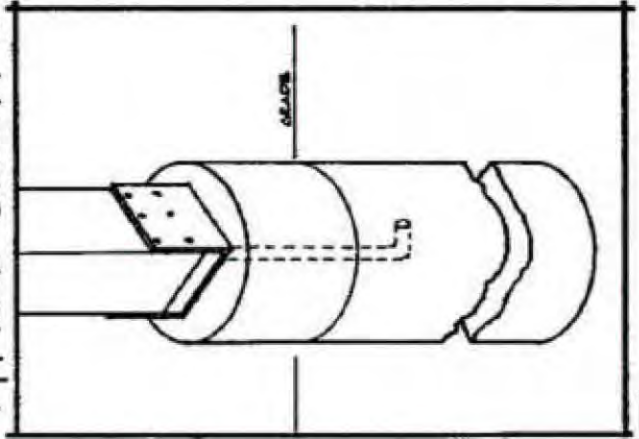


STEEL STRAPS - BOLTED THRU

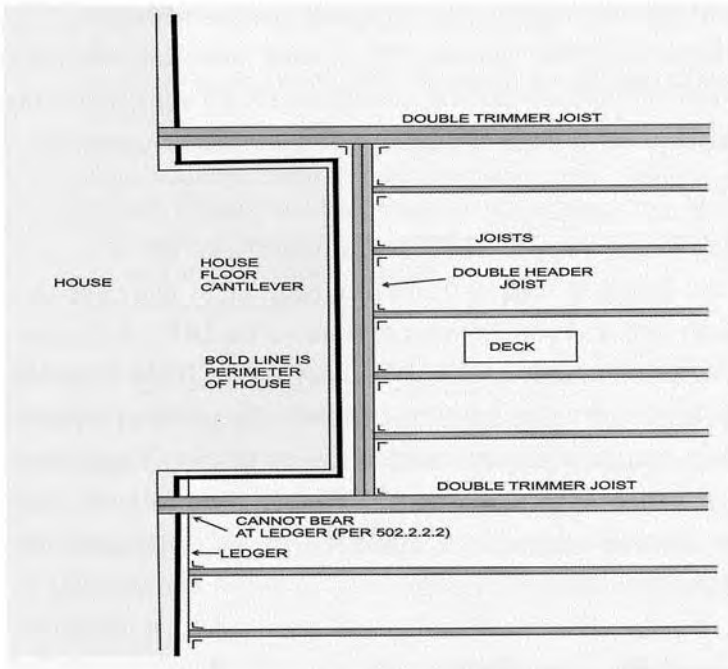


2x4 - NAILED OR SCREWED

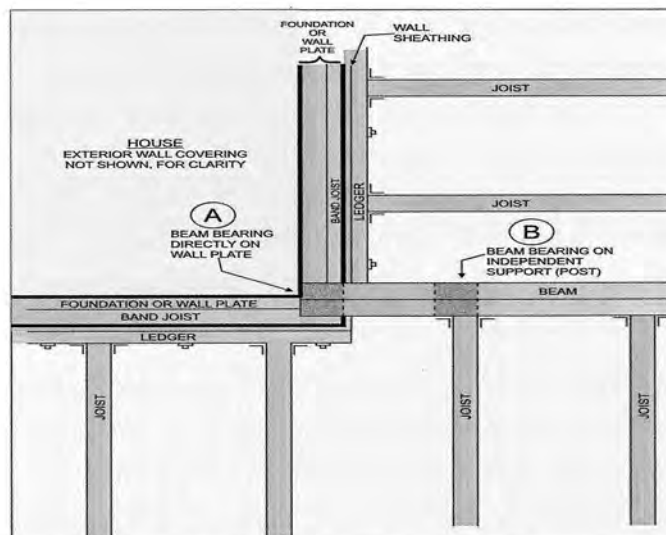
TYPICAL COLUMN TO CAISSON CONNECTIONS:



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.

## Ledger Fastener Table

**TABLE R502.2.2.1**  
**FASTENER SPACING FOR A SOUTHERN PINE OR HEM-FIR DECK LEDGER**  
**AND A 2-INCH NOMINAL SOLID-SAWN SPRUCE-PINE-FIR BAND JOIST<sup>c, f, g</sup>**  
 (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 <sup>d, e</sup>					
1/2 inch diameter lag screw with 1 5/32 inch maximum sheathing <sup>d</sup>	30	23	18	15	13	11	10
1/2 inch diameter bolt with 1 5/32 inch maximum sheathing	36	36	34	29	24	21	19
1/2 inch diameter bolt with 1 5/32 inch maximum sheathing and 1/2 inch stacked washers <sup>b, h</sup>	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.

- The tip of the lag screw shall fully extend beyond the inside face of the band joist.
- The maximum gap between the face of the ledger board and face of the wall sheathing shall be 1/4".
- Ledgers shall be flashed to prevent water from contacting the house band joist.
- Lag screws and bolts shall be staggered in accordance with Section R502.2.2.1.1.
- Deck ledger shall be minimum 2 x 8 pressure-preservative-treated No. 2 grade lumber, or other approved materials as established by standard engineering practice.
- 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.
- A minimum 1 x 9 1/2 Douglas Fir laminated veneer lumber rimboard shall be permitted in lieu of the 2-inch nominal band joist.
- 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.

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. Openings in required guards shall not allow passage of a sphere 4 inches in diameter.

Required guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36 inches high measured vertically above the adjacent walking surface, adjacent fixed seating or the line connecting the leading edges of the treads; an exception is allowed for guards on the open sides of stairs, which may have a height not less than 34 inches measured vertically from a line connecting the leading edges of the treads.

