Building Permit Guides

The City of Louisville Design Criteria, Prescriptive Energy Code, and items listed below shall take precedence over requirements listed in the Building Guides of the Colorado Chapter of International Code Council.

- The City of Louisville has adopted the 2018 International Code series.

- Please reference the city’s design criteria and prescriptive energy code available on the City of Louisville website located at www.louisvilleco.gov/government/departments/planning-building-safety/building-permit-guides.

- All decks are required to be designed by a structural engineer and shall include and engineer stamp and signature.

Sec. 15.05.130. - Section R507.1 amended—Decks.
https://library.municode.com/co/louisville/codes/code_of_ordinances
Section R507.1 of the 2018 International Residential Code is amended to read as follows:

**R507.1 Decks.** Wood-framed decks shall comply with the standards set forth in this section. For decks using materials and conditions not prescribed in this section, refer to Section R301. All decks that are structurally supported from an existing residential home shall be engineered by a structural engineer that is licensed with the State of Colorado.

- Flat roof and patio covers may be required to be designed by a registered design professional. Section R802.4.4 of the 2018 International Residential Code read as follows:

**R802.4.4 Rafter supports.** Where the roof pitch is less than 3:12 (25-percent slope), structural members that support rafters, such as ridges, hips and valleys, shall be designed as beams, and bearing shall be provided for rafters in accordance with section R802.6
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 \( \frac{1}{4}'' \) 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 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. 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.
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.

Size and Spacing of Lags
(example: Two 1/2" x 4 1/2" lags @ 16" O.C.)

Type of decking _x_
(example: 1 x 4 or 2 x 6 - Trex)

Deck Section

Existing bldg.
Electrical outlet required on decks
Approved flashing required

36" high guard with balusters spaced so that a 4 inch diameter sphere cannot pass through
Beam splices to occur over posts with 1 1/2" bearing
Attach decking with non corrosive fasteners

Check one
☐ Detail B
☐ Alternate Detail B1
☐ Alternate Detail B2
(see page 3)

Detail A
(see page 3)

Conditions such as attachment to cantilevers or veneers may require Engineer's approval

6 Ft. 8 in. min. (see note)

2x___ joists spaced ___ apart
(example: 2 x 10 spaced 24" apart)

___ beam
(example: (2) 2 x 10 - see detail B)

2x___ rim joist
(example: 2 x 10 - see Alternate B1 & B2)

___ posts spaced ___ apart
(example: 4 x 4 posts spaced 8' apart)

Span ___
(example: 13' - 4"

Type of siding (existing)

Note: Emergency escape windows are allowed to be installed under decks and porches provided the location of the deck allows the emergency escape window to be fully opened and provides a path not less than 36" in height to a yard or court. 6'8" required for walk out basements or patios.

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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Single Family Residential Uncovered Decks and Porches

Plan View Example

- Tempered windows may be required
- Decking
- Light
- Door to interior
- Electrical outlet
- Stairs
- Joists
- Show post and pier size
- Install diagonal brace to underside of deck joists
- Beams
- X = Show Dimension

Site Plan Example

- Proposed Addition
- One Story Frame
- Concrete Slab for Garage
- Concrete Drive
- Walkway
- Hometown Street

Note: Dimensions are for reference purposes only.

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Single Family Residential Uncovered Decks and Porches

Detail A

- Existing building
- Approved flashing required behind existing siding
- 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

- Beam splices to occur over posts with 1 1/2” bearing
- Secure posts to beam with through bolts
- Non-corrosive metal post/beam connector

Alternate Detail B1

- Secure posts to beam with through bolts
- Beam splices to occur over posts with 1 1/2” bearing
- Non-corrosive metal post/beam connector

Alternate Detail B2

- Full depth 2x solid blocking
- Secure posts to beam with through bolts
- Beam splices to occur over posts with 1 1/2” bearing
- Non-corrosive metal post/beam connector

Detail C

- 1/2” (min.) diameter anchor bolt embedded 7” min. into concrete pier or the equivalent
- Non-corrosive metal post anchor
- Finished grade
- 8” min. If less than 8”, post must be decay resistive
- 8” (min.) diameter pier
- 36” inches min.

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Single Family Residential Uncovered Decks and Porches

Stair & Handrail Specifications

New or existing light required

Open guardrails on decks more than 30 inches above grade or a floor below shall have members spaced so that a 4 inch diameter sphere cannot pass through.

Guardrail required if more than 30"

36" min. height

Openings for required guards on the sides of stair treads shall not allow a 4 3/8" diameter sphere to pass through.

10" min. run from nosing to nosing

Less than 6" dia.

34-38" above nosings

Open risers less than 4"

7 3/4" max. rise

36" Min.

Landing same width as stairs

Finished grade

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 or more 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 311.7.8.2 IRC)

Acceptable Handrail Details

Unacceptable Handrails

Type II

1 1/4" - 2 3/4" max.

1 3/4" min.

1 1/4" - 2" Gripable

Wall or other surface

1 1/2" min.

Type I

1 1/2" min.

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# Deck Joist Spans

**Table R507.5**

**DECK JOIST SPANS FOR COMMON LUMBER SPECIES**

<table>
<thead>
<tr>
<th>SPECIES&lt;sup&gt;a&lt;/sup&gt;</th>
<th>SIZE</th>
<th>SPACING OF DECK JOISTS WITH NO CANTILEVER&lt;sup&gt;b&lt;/sup&gt; (inches)</th>
<th>SPACING OF DECK JOISTS WITH CANTILEVER&lt;sup&gt;c&lt;/sup&gt; (inches)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Southern pine</td>
<td>2 x 6</td>
<td>9-11</td>
<td>9-0</td>
</tr>
<tr>
<td></td>
<td>2 x 8</td>
<td>13-1</td>
<td>11-10</td>
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<tr>
<td></td>
<td>2 x 10</td>
<td>16-2</td>
<td>14-0</td>
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<tr>
<td></td>
<td>2 x 12</td>
<td>18-0</td>
<td>16-6</td>
</tr>
<tr>
<td>Douglas fir-larch,&lt;sup&gt;d&lt;/sup&gt; hem-fir,&lt;sup&gt;d&lt;/sup&gt; spruce-pine-fir&lt;sup&gt;d&lt;/sup&gt;</td>
<td>2 x 6</td>
<td>9-6</td>
<td>8-8</td>
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<tr>
<td></td>
<td>2 x 8</td>
<td>12-6</td>
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<td>2 x 10</td>
<td>15-8</td>
<td>13-7</td>
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<tr>
<td></td>
<td>2 x 12</td>
<td>18-0</td>
<td>15-9</td>
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<tr>
<td>Redwood, western cedars, ponderosa pine,&lt;sup&gt;e&lt;/sup&gt; red pine&lt;sup&gt;e&lt;/sup&gt;</td>
<td>2 x 6</td>
<td>8-10</td>
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<td>2 x 8</td>
<td>11-8</td>
<td>10-7</td>
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<td></td>
<td>2 x 10</td>
<td>14-11</td>
<td>13-0</td>
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<tr>
<td></td>
<td>2 x 12</td>
<td>17-5</td>
<td>15-1</td>
</tr>
</tbody>
</table>

For St: 1 inch=25.4 mm, 1 foot=304.8 mm, 1 pound per square foot=0.0479 kPa, 1 pound=0.454 kg

- a. No. 2 grade with wet service factor
- b. Ground snow load, live load=40 psf, dead load=10 psf, L/D=360
- c. Ground snow load, live load=40 psf, dead load=10 psf, L/D=360 at main span, L/D=180 at cantilever with a 220-pound point load applied to end
- d. Includes incising factor
- e. Northern species with no incising factor
- f. Cantilevered spans not exceeding the nominal depth of the joist are permitted
<table>
<thead>
<tr>
<th>SPECIES</th>
<th>SIZE</th>
<th>DECK JOIST SPAN LESS THAN OR EQUAL TO:</th>
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<tbody>
<tr>
<td></td>
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<td>(feet)</td>
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<tr>
<td></td>
<td></td>
<td>6</td>
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<tr>
<td>Southern pine</td>
<td>2 × 2</td>
<td>6-11</td>
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<td>12-2</td>
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<td>3 × 6</td>
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<td>15-3</td>
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<tr>
<td>Douglas fir-larch, hem-fir, spruce-pine-fir, redwood, western cedars, ponderosa pine, red pine</td>
<td>3 × 6 or 2 × 2</td>
<td>5-5</td>
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<td>3 × 8 or 2 × 8</td>
<td>6-10</td>
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<td></td>
<td>3 × 10 or 2 × 10</td>
<td>8-4</td>
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<td></td>
<td>3 × 12 or 2 × 12</td>
<td>9-8</td>
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<td>4 × 6</td>
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<td>3 × 2 × 6</td>
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