How to use this guide:
This guide was designed to assist the do-it-yourselfer create a construction plan to build a simple deck using conventional construction methods. Non-conventionally constructed decks may require a design professional.

1. **Complete this Building Guide** by filling in the blanks on page two and three and indicating which construction details will be used.

2. **Provide a Site Plan** showing the dimensions of your project and its relationships to existing buildings or structures, utilities, property lines and easements. 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.

3. **Now you are ready to apply for your building permit.** The majority of permit applications can be processed with little delay. The submitted documents will help determine if the project is in compliance with building codes, zoning ordinances and other applicable laws.

4. **Inspections.** A footing inspection is required before they can be poured. A framing inspection is required before you lay decking or attach handrails to verify plans are being followed and that proper connections are used. All projects must receive a final inspection in order to verify that your project meets code, is safe to use and to close out the permit. Remember YOU are responsible to get the inspections! If you are unsure during the construction process contact your Department of Building Safety.
**Directions:**
1. List homeowner name and address of project.
2. Fill in the blanks on pages 2 and 3 with dimensions and materials which will be used to build the structure. Please print legibly.
3. Choose which post to beam detail from page 4 that will be used.

**Minimum Requirements:**
- All lumber shall be naturally durable wood or pressure treated.
- All screws, bolts, and nails for use with preservative treated wood shall be hot-dipped galvanized, stainless steel, silicon bronze or copper. Fasteners to be hot-dipped galvanized shall meet the requirements of ASTM A 153, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware, Class D for fasteners 3/8” in diameter and smaller or Class C for fasteners with diameters over 3/8”. IRC 317.3.1
- All hardware (joist hangers, cast-in-place post anchors, etc.) shall be galvanized or shall be stainless steel. Hardware to be hot-dipped prior to fabrication shall meet ASTM A 653, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process, G-185 coating. Hardware to be hot-dipped galvanized after fabrication shall meet ASTM A123, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

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**Deck Section**

- **Existing building**
- **Approved flashing required IRC 703.8**
- **Attach decking with approved fasteners**

**Detail A**
**Ledger Attachment** (see page 3)

**Detail B**
**Post to Beam Attachment** (see page 4)

**Detail C**
**Footing & Post Attachment** (see page 5)

**Detail D**
Guardrails & Handrails (see pages 5 & 6)

**Type of decking**
- Green Treat
- Cedar
- Composite
- Other

**2 x_____ joists spaced_____” apart**
(example: 2 x 10” spaced 24” apart)

**_____x_____ beam**
(example: (2) 2 x 10 - see Table B1 )

**Post to Beam Attachment_____**
(example: Detail B1, B2 or B3 – see pg 4 )

**2 x________ rim joist**
(example 2 x 10 - should be same as joist)

**_____x_____ posts spaced_____” apart**
(example: 4 x 4 posts spaced 8’ apart - see Table F - pg 6)

**Span_____**
(example: 13’ - 14”)

**Type of siding** (proposed or existing)
- Vinyl
- Aluminum
- Brick
- Wood
- Composite
- Pressed Board
- Other

**Height off ground_____**
(Example: 48” - see Detail D - pg 5)

Guardrail required?  
- Yes
- No
Table A1

IRC TABLE 502.2.2.1
FASTENER SPACING FOR A SOUTHERN PINE OR HEM-FIR DECK LEDGER AND A 2-INCH NOMINAL SOLID-SAWN SPRUCE-PINE-FIR BAND JOIST C,F,G
(Deck live load = 40 psf, deck dead load = 10 psf)

<table>
<thead>
<tr>
<th>FLOOR JOIST SPAN</th>
<th>6’ and less</th>
<th>6’1” to 8’</th>
<th>8’1” to 10’</th>
<th>10’1” to 12’</th>
<th>12’1” to 14’</th>
<th>14’1” to 16’</th>
<th>16’1” to 18’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection details</td>
<td>On-center spacing of fasteners de</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2 inc diameter lag screw with 15/32 inch maximum sheathing a</td>
<td>30</td>
<td>23</td>
<td>18</td>
<td>15</td>
<td>13</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>1/2 inch diameter bolt with 15/32 inch maximum sheathing</td>
<td>36</td>
<td>36</td>
<td>34</td>
<td>29</td>
<td>24</td>
<td>21</td>
<td>19</td>
</tr>
<tr>
<td>1/2 inch diameter bolt with 15/32 inch maximum sheathing and 1/2 inch stacked washers b,h</td>
<td>36</td>
<td>36</td>
<td>29</td>
<td>24</td>
<td>21</td>
<td>18</td>
<td>16</td>
</tr>
</tbody>
</table>

DIRECTIONS:
1. Identify Ledger Size 2 x _______ X ________ (example 2’ x 10” X 10’)
2. Identify # of fasteners needed ________ Size _______ X ________ @ ______ O.C.
   (example two 1/2” X 6” lags @ 18” O.C. See Table A1) *If using fasteners other than 1/2 lag or bolts, provide manufacturer’s specs.
3. Location of lateral load connections ____________________________ (see Figure A2)

NOTE: This is for attached decks only. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting (S02.2.2).

**Figure A1**
Ledger Bolt Schedule per IRC 502.2.2.1.1
See Table A1

**Figure A2**
Deck lateral load connection R502.2.2.3
Floor sheathing nailed at 6” max on center to joist with holdown

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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 band joist.
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 the diagram above.
e. Deck ledger shall be minimum 2 x 8 pressure-preservative-treated No. 2 grade lumber, or other approved materials by standard engineering practice.
f. When solid-sawn preservative-treated deck ledgers are attached to a minimum 1 inch thick engineered wood product (structural composite lumber, LVL or wood structural panel band joist), the ledger attachment shall be designed in accordance with accepted engineering practice.
g. A minimum 1 x 9 1/2 Douglas Fir LVL 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 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.
**Single Family Residential—Uncovered Deck and Porches**

**Table B1**

<table>
<thead>
<tr>
<th>Species</th>
<th>Size</th>
<th>12&quot;</th>
<th>16&quot;</th>
<th>19.2&quot;</th>
<th>24&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Southern Yellow Pine</strong></td>
<td>2 x 8</td>
<td>14'2&quot;</td>
<td>12'10&quot;</td>
<td>12'1&quot;</td>
<td>11'0&quot;</td>
</tr>
<tr>
<td></td>
<td>2 x 10</td>
<td>18'0&quot;</td>
<td>16'1&quot;</td>
<td>14'8&quot;</td>
<td>13'1&quot;</td>
</tr>
<tr>
<td></td>
<td>2 x 12</td>
<td>21'9&quot;</td>
<td>18'10&quot;</td>
<td>17'2&quot;</td>
<td>15'5&quot;</td>
</tr>
<tr>
<td><strong>Douglas Fir-Larch, Hem-Fir, SPF</strong></td>
<td>2 x 8</td>
<td>13'6&quot;</td>
<td>12'3&quot;</td>
<td>11'6&quot;</td>
<td>10'3&quot;</td>
</tr>
<tr>
<td></td>
<td>2 x 10</td>
<td>17'3&quot;</td>
<td>15'5&quot;</td>
<td>14'1&quot;</td>
<td>12'7&quot;</td>
</tr>
<tr>
<td></td>
<td>2 x 12</td>
<td>20'7&quot;</td>
<td>17'10&quot;</td>
<td>16'3&quot;</td>
<td>14'7&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**
- a. # 2 grade or better, wet service conditions
- b. 40 psf live load, 10 psf dead load

**Table B2**

<table>
<thead>
<tr>
<th>Lumber Species</th>
<th>Joist Size</th>
<th>Floor Joist Spans Less Than or Equal to</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6'</td>
<td>8'</td>
</tr>
<tr>
<td><strong>Southern Yellow Pine</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - 2 x 6</td>
<td>7'1&quot;</td>
<td>6'2&quot;</td>
</tr>
<tr>
<td>2 - 2 x 8</td>
<td>9'2&quot;</td>
<td>7'11&quot;</td>
</tr>
<tr>
<td>2 - 2 x 10</td>
<td>11'0&quot;</td>
<td>10'3&quot;</td>
</tr>
<tr>
<td>2 - 2 x 12</td>
<td>13'11&quot;</td>
<td>12'0&quot;</td>
</tr>
<tr>
<td>3 - 2 x 6</td>
<td>8'7&quot;</td>
<td>7'8&quot;</td>
</tr>
<tr>
<td>3 - 2 x 8</td>
<td>11'4&quot;</td>
<td>9'11&quot;</td>
</tr>
<tr>
<td>3 - 2 x 10</td>
<td>14'5&quot;</td>
<td>12'10&quot;</td>
</tr>
<tr>
<td>3 - 2 x 12</td>
<td>17'5&quot;</td>
<td>15'1&quot;</td>
</tr>
<tr>
<td><strong>Douglas Fir-Larch, Hem-Fir, SPF</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - 2 x 6</td>
<td>6'10&quot;</td>
<td>5'11&quot;</td>
</tr>
<tr>
<td>2 - 2 x 8</td>
<td>8'4&quot;</td>
<td>7'3&quot;</td>
</tr>
<tr>
<td>2 - 2 x 12</td>
<td>9'8&quot;</td>
<td>8'5&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**
- a. # 2 grade or better, wet service conditions
- b. 40 psf live load, 10 psf dead load
- c. Beam assembled per (IRC 602.2(1)) * Table taken from 2008 American Forest & Paper Association, Inc “Prescriptive Residential Wood Deck Construction Guide”

**Figure B1**

**Beam Splices**

Splice must occur over posts with 1 1/2” bearing

**Detail B1**

Beam splices to occur over posts with 1 1/2” bearing
(see figure B1)

**Detail B2**

Beam splices to occur over posts with 1 1/2” bearing
(see figure B1)

**Detail B3**

Beam splices to occur over posts with 1 1/2” bearing
(see figure B1)

**DISCLAIMER:** ILLOWA Chapter of the ICC has created this handout to assist with plans submittal under the 2009 International Residential Code, and it is not intended to cover all circumstances. Please check with the Department of Building Safety for additional requirements.
**Handrail Notes:**
1. Handrails shall be continuous on at least one side of stairs with 4 or more risers. IRC 311.7.7.2
2. Top of the handrails shall be placed not less than 34 inches nor more than 38 inches above stair nosings. 311.7.7.1
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. IRC 311.7.7.2

**Stairway Notes:** (IRC 311)
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” run.
8. Composite materials (example: Trex) may require 4 stringers.
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