# DECK WORK SHEET

*Planning your deck*

Please fill out and return this sheet with 2 copies of your deck plan.

Property Address

Homeowner or Contractor

Please cross out one

**ALL** information/items below **MUST** be provided on **YOUR** deck plan

## Deck Location

Show location of any overhead conductors

Show location of any gas regulators, electric meters, faucets, etc., or other equipment above, below, on or through deck

## Deck Construction

Show type of wood

Show dimensions/size of deck in plan view

Show greatest height of deck above ground level

Show depth of piers/footings

Show size & spacing of piers/footings

Show size & spacing of columns/posts (under deck)

Show how of column/post is anchored to pier/footing

Show size & number of girder members

(Are All joints over columns & continuous over a minimum of 2 columns?)

Show how is girder attached to posts & joists

Show joist size & spacing

Show maximum joist span

Show deck band/ledger board size

Show decking size & material

Show flashing detail

Show attachment to house

## Guardrail Construction

(Required for deck over 30 in. above grade)

Show height above deck floor

Show size & spacing of deck posts

Show size & spacing of rails

Show size & spacing of pickets

## Handrail Construction

(Required for 4 risers and more (3 treads))

Show grip size/profile

Show height above stair

## Stair Construction

Show number of risers

Show stair width

Show maximum riser height

Show minimum tread depth

Show stringer size

Revised 05/01/15
Typical Deck Framing Plan

Lumber species:

joist span (Lj):

2x4 joists at 12", 16", or 24" on center

L/4 max. overhang

joist hanger: ____ lbs

trimmer hanger: ____ lbs

rim joist

round or square footing: see Table 4

Dia. = ____ " x ____ " thick - ____ " deep

La/4 max. overhang

beam span (La): see Table 3

single, double, or triple ____ x ____; Lb = ____ " x ____"

steps: ____ x ____

Typical Footing

posts must be centered on footing

grade

42" minimum

frost depth

Post-to-Beam Attachment

Requirements

(1) 3x or 4x or
(2) 2x beam

beam must bear fully on 6x6 notch

6x6 min.

notch post to accommodate beam

Alternate Approved Post-to-Beam

Post Cap Attachment

Solid sawn or multi-ply beam

6x6 min.

post

2
**Attachment of Free-Standing Deck to House for Deck Stability**

- exterior sheathing min. thickness = 3/8"
- existing wall stud, band joist, or concrete or masonry foundation wall
- fasteners @ 16" o.c. staggered
- rim joint beam & post
- remove siding at rim joint location prior to installation
- continuous flashing extending past rim joint fasteners

**Stair Guard Requirements**

- Stair guard height: 34" min. measured from nosing of step
- Stair guard is required for stairs with a total rise of 30" or more; see GUARD REQUIREMENTS for more information
- 6'-0" maximum between posts
- Triangular opening shall not permit the passage of a 6" diameter sphere.
- Openings for required guards on the sides of stair treads shall not allow a sphere 4-3/8" to pass through.

**Example Guard Detail**

- 2" x 4" post, typical
- 4" x 4" minimum spacing
- 2x2 baluster, typical
- 2x4 top and bottom; attach to guard post with (2) 3/8" lag screws or (2) wooden screws or (2) lag screws
- (2) 1-1/2" diameter thru-bolts and washers
- (2) 1" minimum
- Openings shall not allow the passage of a 4" diameter sphere
- Attach balusters at top and bottom with (1) 8 penny wooden screws or (2) lag screws
- 0.135" nominal diameter
- 6" minimum

**Handrail Mounting Examples**

- Fasten handrails per manufacturer recommendations
- Corrosion resistant handrail hardware
- Wall
- Guard post
- MOUNTED TO GUARD
- MOUNTED TO WALL

**Handrail Grip Size**

- NONCIRCULAR
  - [R311.7.7.3 Type I]
  - Perimeter: 4" - 6"
- CIRCULAR
  - [R311.7.7.3 Type II]
  - Perimeter: >6"
- RECESSED
  - 1-7/8" min.
  - A max.
  - A min.
  - 1-1/2" - 2-1/2" max.
  - 1-1/2" min.
  - 1-1/2" max.
  - 1-1/2" min.
R502.2.2 Decks. Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads as applicable. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting. For decks with cantilevered framing members, connections to exterior walls or other framing members, shall be designed and constructed to resist uplift resulting from the full live load specified in Table R301.5 acting on the cantilevered portion of the deck.

R502.2.2.1 Deck ledger connection to band joist. For decks supporting a total design load of 50 pounds per square foot (2394 Pa) (40 pounds per square foot (1915 Pa) live load plus 10 pounds per square foot (479 Pa) dead load), the connection between a deck ledger of pressure-preservative-treated Southern Pine, incised pressure-preservative-treated Hem-Fir or approved decay-resistant species, and a 2-inch (51 mm) nominal lumber band joist bearing on a sill plate or wall plate shall be constructed with 1/2-inch (12.7 mm) lag screws or bolts with washers in accordance with Table R502.2.2.1. Lag screws, bolts and washers shall be hot-dipped galvanized or stainless steel.

R502.2.2.1.1 Placement of lag screws or bolts in deck ledgers. The lag screws or bolts shall be placed 2 inches (51 mm) in from the bottom or top of the deck ledgers and between 2 and 5 inches (51 and 127 mm) in from the ends. The lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger.

R502.2.2.2 Alternate deck ledger connections. Deck ledger connections not conforming to Table R502.2.2.1 shall be designed in accordance with accepted engineering practice. Girders supporting deck joists shall not be supported on deck ledgers or band joists. Deck ledgers shall not be supported on stone or masonry veneer.

R502.2.2.3 Deck lateral load connection. The lateral load connection required by Section R502.2.2 shall be permitted to be in accordance with Figure R502.2.2.3. Hold-down tension devices shall be installed in not less than two locations per deck, and each device shall have an allowable stress design capacity of not less than 1500 pounds (6672 N).

R502.2.2.4 Exterior wood/plastic composite deck boards. Wood/plastic composite deck boards shall be installed in accordance with the manufacturer's instructions.
### 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**

(Deck live load = 40 psf, deck dead load = 10 psf)

<table>
<thead>
<tr>
<th>JOIST SPAN</th>
<th>0' and less</th>
<th>6'1&quot; to 6'</th>
<th>6'1&quot; to 10'</th>
<th>10'1&quot; to 12'</th>
<th>12'1&quot; to 14'</th>
<th>14'1&quot; to 16'</th>
<th>16'1&quot; to 18'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection details</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 lag screw 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</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>

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 ledgers shall be minimum 2 x 8 pressure-impregnated No. 2 grade lumber, or other approved materials as established by standard engineering practice.
- When solid-sawn pressure-impregnated 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 (LVL) 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.

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![Diagram of floor joist and deck joist with hold-downs and tension device](image)

**FIGURE 502.2.2.3**

DECK ATTACHMENT FOR LATERAL LOADS

For SI: 1 inch = 25.4 mm.
### FLOOR JOISTS SPANS FOR COMMON LUMBER SPECIES
(Residential living areas, live load = 40 psf, L/5 = 380)\(^p\)

<table>
<thead>
<tr>
<th>JOIST SPACING (inches)</th>
<th>SPECIES AND GRADE</th>
<th>2x8</th>
<th>3x8</th>
<th>2x10</th>
<th>3x12</th>
<th>Maximum floor joist span</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2x8</td>
<td>3x8</td>
<td>2x10</td>
<td>3x12</td>
<td>2x8</td>
</tr>
<tr>
<td>12</td>
<td>Douglas fir-larch</td>
<td>11-4</td>
<td>15-0</td>
<td>19-1</td>
<td>23-3</td>
<td>11-4</td>
</tr>
<tr>
<td></td>
<td>Douglas fir-larch 0</td>
<td>9-8</td>
<td>11-0</td>
<td>13-5</td>
<td>15-7</td>
<td>9-10</td>
</tr>
<tr>
<td></td>
<td>Hem-fir</td>
<td>10-6</td>
<td>13-10</td>
<td>17-8</td>
<td>21-6</td>
<td>10-6</td>
</tr>
<tr>
<td></td>
<td>Hem-fir</td>
<td>10-0</td>
<td>13-2</td>
<td>16-10</td>
<td>20-4</td>
<td>10-0</td>
</tr>
<tr>
<td></td>
<td>Hem-fir</td>
<td>9-8</td>
<td>11-0</td>
<td>13-5</td>
<td>15-7</td>
<td>9-10</td>
</tr>
<tr>
<td></td>
<td>Southern pine</td>
<td>11-2</td>
<td>16-8</td>
<td>18-0</td>
<td>22-10</td>
<td>11-2</td>
</tr>
<tr>
<td></td>
<td>Southern pine</td>
<td>10-9</td>
<td>14-2</td>
<td>18-0</td>
<td>21-9</td>
<td>10-9</td>
</tr>
<tr>
<td></td>
<td>Southern pine</td>
<td>9-4</td>
<td>11-1</td>
<td>13-4</td>
<td>16-8</td>
<td>9-10</td>
</tr>
<tr>
<td></td>
<td>Spruce-pine-fir</td>
<td>10-6</td>
<td>13-10</td>
<td>17-8</td>
<td>21-6</td>
<td>10-6</td>
</tr>
<tr>
<td></td>
<td>Spruce-pine-fir</td>
<td>10-3</td>
<td>13-6</td>
<td>17-3</td>
<td>20-7</td>
<td>10-3</td>
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Note: Check sources for availability of lumber in lengths greater than 20 feet.

a. End bearing length shall be increased to 2 inches.
b. Dead load limits for townhouses in Seismic Design Category C and all structures in Seismic Design Categories D, E, and F shall be determined in accordance with Section R301.2.2.2.1.