RESIDENTIAL WOOD DECKS
CONSTRUCTION GUIDE

CITY OF
STRONGSVILLE, OHIO

BUILDING DEPARTMENT
16099 FOLTZ PARKWAY
440-580-3105
1. This document shall apply for single level decks only.

2. Decks are not permitted to encroach into the side yard that has been established by the main dwelling. (Strongsville Codified Ordinance (SCO)1252.16).

3. An unenclosed deck may project fourteen (14’) feet into the required rear yard. (SCO 1252.06)

4. A deck must be set back not less than five (5’) feet from any rear lot line. (SCO) 1252.16)

5. Decks may not encroach into any easement. (SCO 1252.16)

6. Minimum structural posts shall be 4x6 or 6x6. Guard posts may be 4x4.

7. All wood in contact with ground shall be pressure preservative treated wood suitable for ground contact. (Residential Code of Ohio (RCO) 317.2)

8. Decking shall be 2x4, 2x6, five quarter board, or Wood-Plastic Composite sizes per Manufacturer’s specifications.

9. Wood-Plastic Composite decking shall be installed per the Manufacturer’s Installation instructions.

10. All screws, nails, bolts, washers and nuts used with preservative treated wood shall be hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze, or copper. (RCO 317.3.1).

11. Decks supporting large concentrated loads (spa tubs, masonry fireplaces, etc.) are beyond the scope of this document and may require submission of professionally designed drawings.


13. THIS DOCUMENT IS NOT INTENDED TO PRECLUDE THE USE OF OTHER CONSTRUCTION METHODS OR MATERIALS NOT SHOWN HEREIN.
The joist span is the distance between the two points supporting the joist (i.e. ledger to beam, beam to beam) and does not include any overhang. Allowable cantilever is joist span = (L)/4.
JOISTS

FLOOR JOIST SPANS FOR COMMON LUMBER  LIVE LOAD 40 PSF

<table>
<thead>
<tr>
<th>JOIST SPACING</th>
<th>SPECIES</th>
<th>2 x 6</th>
<th>2 x 8</th>
<th>2 x 10</th>
<th>2 x 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>12” o.c.</td>
<td>#2 SPF</td>
<td>9’11”</td>
<td>13’1”</td>
<td>16’2”</td>
<td>18’0”</td>
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<tr>
<td>16” o.c.</td>
<td>#2 SPF</td>
<td>9’0”</td>
<td>11’10”</td>
<td>14’0”</td>
<td>16’6”</td>
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Courtesy of American Wood Council - Leesburg, VA
BEAMS

**SPECIES** | **SIZE** | **SPAN LENGTH**
--- | --- | ---
SOUTHERN PINE | (2) 2x6 | 6’8”
 | (2) 2x8 | 8’6”
 | (2) 2x10 | 10’1”
 | (2) 2x12 | 11’11”
 | (3) 2x6 | 7’11”
 | (3) 2x8 | 10’7”
 | (3) 2x10 | 12’9”
 | (3) 2x12 | 10’4”

**STRUCTURAL COMPOSITE LUMBER**

Structural Composite Lumber (SCL), which includes laminated veneer lumber (LVL), parallel stranded lumber (PSL), laminated strand lumber (LSL) and oriented strand lumber (OSL) must comply with the requirements of 2013 Residential Code of Ohio Section 317—Protection of Wood and Wood Based Products Against Decay.
CONNECTIONS

JOIST TO BEAM DETAIL

3-8d threaded
3.8d threaded
toe nails
toe nails
(2 on one side,
(2 on one side,
1 on the other).
1 on the other).

OPTION 1*
OPTION 1*

OPTION 2**
OPTION 2**

OPTION 3**
OPTION 3**

*Option 1
*Option 1
shall only be
shall only be
used if deck
used if deck
is attached
is attached
to house.
to house.

**see manufacturer’s recommendations for additional requirements
**see manufacturer’s recommendations for additional requirements

top of beam and joist
top of beam and joist
must be at same
must be at same
elevation.
elevation.

beam
beam

Courtesy of American Wood Council - Leesburg, VA

POST TO BEAM CONNECTIONS

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

(2) 1/2" diameter thru-
bolts with washers
(2) 1/2" diameter thru-
bolts with washers

beam must bear
beam must bear
fully on 6x6 notch
fully on 6x6 notch

6x6 min.
6x6 min.

notch post to
notch post to
accomodate beam
accomodate beam

NOTCHED POST

Courtesy of American Wood Council - Leesburg, VA
Solid sawn or multi-ply beam

6x6 min. post

POST CAP

PROHIBITED CONNECTION

Courtesy of American Wood Council - Leesburg, VA
CONNECTIONS

LEDGER BOARD CONNECTIONS

1. Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure.

2. Ledger boards shall be equal to or greater than the joist depth.

3. Ledger boards shall not be attached to veneers—brick, stone, masonry; or to cantilevered floors or windows.

4. Exterior finish (siding) shall be removed prior to the placement of a ledger board.

5. Continuous flashing is required when the ledger board is attached to wood-framed construction.

6. TYPES OF FASTENERS:
   A. LAG SCREWS: Lag Screws shall be hot-dipped galvanized or stainless steel with a 1/2 inch minimum diameter and installed with washers.
   B. EXPANSION ANCHORS: Expansion anchors, 1/2 inch diameter bolt or threaded rod minimum, equipped with washers installed according to the manufacturer’s installation instructions.
   C. ADHESIVE ANCHORS: Adhesive anchors (Hilti-HY-70; Red Head - Epcon A7) minimum 1/2 inch threaded rod with washers shall be used for concrete, solid or hollow masonry. Adhesive cartridges must remain on jobsite for inspector verification.
   D. WOOD SCREWS: Wood screws (FastenMaster—LedgerLok; Simpson Strong Tie-Strong-Drive Screws(SDS, SDW) with a minimum 1/4 inch diameter may be used to attach to wood frame construction.
Placement of Lag Screws and Bolts in Ledgers

Stagger fasteners in two rows

Ledger

Lag screw or bolt

5" max.

2" min.

5 1/2" min. for 2x8*
6 1/2" min. for 2x10
7 1/2" min. for 2x12

* Distance can be reduced to 4 1/2" if lag screws are used or bolt spacing is reduced to that of lag screws to attach 2x8 ledgers to 2x8 band joists.

LEDGER BOARD FASTENER SPACING, INCHES ON CENTER

<table>
<thead>
<tr>
<th>FASTENER</th>
<th>JOIST SPANS</th>
<th>6'</th>
<th>8'</th>
<th>10'</th>
<th>12'</th>
<th>14'</th>
<th>16'</th>
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<tbody>
<tr>
<td>LAG SCREWS</td>
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<td>WOOD SCREWS</td>
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<td>ADHESIVE ANCHORS</td>
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GUARDS

1. A guard is required when a deck is greater than 30” above grade measured vertically at any point within 36” measured horizontally along the deck edge. (2013 Residential Code of Ohio 312.1)

2. The height of the guard shall be not less than 36” measured vertically above the walking surface. (2013 Residential Code of Ohio 312.2)

3. Required guards shall not have openings from the walking surface to the required guard height which allow the passage of a sphere 4” in diameter. (2013 Residential Code 312.3)

4. Guard posts shall be 4x4 minimum.

STAIRS

1. Stairs shall have a minimum clear width 36”. (2013 RCO 311.7.1)

2. The maximum riser height shall be 8 1/4”. (2013 RCO 311.7.4.1)

3. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8”. (2013 RCO 311.7.4.1)

4. The minimum tread depth shall be 9”. (2013 RCO 311.7.4.2)

5. Wood-plastic composites used shall bear a label indicating the required performance levels and demonstrating compliance with the provisions of ASTM D 7032.
1. Handrails shall be provided on at least one side of each continuous run of treads or flight with four (4) or more risers. (2013 RCO 311.7.7)

2. Handrail height, measured vertically from the tread nosing shall not be less than 34” and not more than 38”. (2013 RCO 311.7.7.1)

3. Handrails shall be continuous for the full length of the flight. (2013 RCO 311.7.7.2)

4. Handrails shall be provided with graspability as illustrated below. (2013 RCO 311.7.73)

![Handrail Diagram](image-url)

**NONCIRCULAR**

[R311.7.7.3 Type I]
Perimeter: 4” - 6 1/4”

**CIRCULAR**

**RECESSED**

[R311.7.7.3 Type II]
Perimeter: >6 1/4”

Courtesy of American Wood Council - Leesburg, VA
Fasten handrails per manufacturer recommendations

1\(\frac{3}{4}\)" min.

\(1\frac{2}{4}\)" min.

2x blocking

34"-38" to nosing of stairs, typical

corrosion-resistant handrail hardware

MOUNTED TO GUARD

MOUNTED TO WALL

Guard post

Wall

Courtesy of American Wood Council - Leesburg, VA
CITY OF STRONGSVILLE, OHIO

MINIMUM INFORMATION REQUIRED FOR DECK PERMIT