Guidelines for Wheelchair Accessible Ramps Not to Include Decks.

Plan review information

Ramp Length: ___________  Ramp Height: ___________  Slope: ___________

Post size: 4 X 4 Post Minimum

Floor Joist size ___________  Length ___________

Girder size ___________  Length ___________

****Ramps must be in compliance with the 2018 International Residential Code and the 2017 ICC A117.1
Inspections

The following inspections are needed for a Ramp:

1) Post Footer
2) Framing
3) Final

***Please be advised other inspections may be needed and other code requirements may be applicable.

Requirements from ICC A117.1-2017

405.1 General. Ramps along accessible routes shall comply with Section 405.

Exception: In assembly areas, aisle ramps adjacent to seating and not serving elements required to be on an accessible route shall not be required to comply with this section.

405.2 Slope. Ramp runs shall have a running slope greater than 1:20 and not steeper than 1:12.

Exception: In existing buildings or facilities, ramps shall be permitted to have slopes steeper than 1:12 complying with Table 405.2 where such slopes are necessary due to space limitations.

405.3 Cross slope. Cross slope of ramp runs shall not be steeper than 1:48.

405.4 Floor surfaces. Floor surfaces of ramp runs shall comply with Section 302.

405.5 Clear width. The clear width of a ramp run shall be 36 inches (915 mm) minimum. Handrails and handrail supports that are provided on the ramp run shall not project into the required clear width of the ramp run.

Exception: Within employee work areas, the required clear width of ramps that are a part of common use circulation paths shall be permitted to be decreased by work area equipment provided that the decrease is essential to the function of the work being performed.
405.6 Rise. The rise for any ramp run shall be 30 inches (760 mm) maximum.

405.7 Landings. Ramps shall have landings at the bottom and top of each ramp run. Landings shall comply with Section 405.7.

<table>
<thead>
<tr>
<th>Slope</th>
<th>Maximum Rise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steeper than 1:10 but not steeper than 1:8</td>
<td>3 inches (75 mm)</td>
</tr>
<tr>
<td>Steeper than 1:12 but not steeper than 1:10</td>
<td>6 inches (150 mm)</td>
</tr>
</tbody>
</table>

![Diagram of ramp and landing dimensions]

405.7.1 Slope. Landings shall have a slope not steeper than 1:48 and shall comply with Section 302.

405.7.2 Width. Clear width of landings shall be at least as wide as the widest ramp run leading to the landing.

405.7.3 Length. Landings shall have a clear length of 60 inches (1525 mm) minimum.

405.7.4 Change in direction. Ramps that change direction between runs at landings shall have a clear landing 60 inches (1525 mm) minimum by 60 inches (1525 mm) minimum.

405.7.5 Doorways. Where a door or gate is adjacent to a ramp landing, maneuvering clearances required by Sections 404.2.3 and 404.3.4 shall be permitted to overlap the landing area. Where a door or gate that is subject to locking is located adjacent to a ramp landing, the landing shall be sized to provide a turning space complying with Section 304.3.

405.8 Handrails. Ramp runs with a rise greater than 6 inches (150 mm) shall have handrails complying with Section 505.

Exception: Within employee work areas, handrails shall not be required where ramps that are part of common use circulation paths, and which are used for the movement of equipment, are designed to permit the installation of handrails complying with Section 505. Ramps not subject to the exception to Section 405.5 shall be designed to maintain a 36-inch (915 mm) minimum clear width where handrails are installed.

405.9 Edge protection. Edge protection complying with Section 405.9.1 or 405.9.2 shall be provided on each side of ramp runs and at each side of ramp landings.

Exceptions:

1. Edge protection shall not be required on ramps not required to have handrails and that have flared sides complying with Section 406.3.

2. Edge protection shall not be required on the sides of ramp landings serving an adjoining ramp run or stairway.

3. Edge protection shall not be required on the sides of ramp landings having a vertical drop-off of 1/2 inch (13 mm) maximum within 10 inches (255 mm) horizontally of the minimum landing area specified in Section 405.7.

4. Edge protection shall not be required on the sides of ramped aisles where the ramps provide access to the adjacent seats and aisle access ways.
Ramp Footing

R507.4.1 Deck post to deck footing connection. Where posts bear on concrete footings in accordance with Section R403 and Figure R507.4.1, lateral restraint shall be provided by manufactured connectors or a minimum post embedment of 12 inches (305 mm) in surrounding soils or concrete piers. Other footing systems shall be permitted.

For SI: 1 inch = 25.4 mm.

**Ramp Footing Must be installed with one of the examples listed above**

Ledger details

R507.9.1.1 Ledger details. Deck ledgers shall be a minimum 2-inch by 8-inch (51 mm by 203 mm) nominal, pressure-preservative-treated Southern pine, incised pressure-preservative-treated hem-fir, or approved, naturally durable, No. 2 grade or better lumber. Deck ledgers shall not support concentrated loads from beams or girders. Deck ledgers shall not be supported on stone or masonry veneer.
TABLE R507.9.1.3(2)
PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS

<table>
<thead>
<tr>
<th>Minimum End and Edge Distances and Spacing Between Rows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Edge</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Ledger*</td>
</tr>
<tr>
<td>Band Joist</td>
</tr>
</tbody>
</table>

For SI: 1 inch = 25.4 mm.

a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.9.1.3(1).
b. Maximum 5 inches.
c. For engineered rim joists, the manufacturer’s recommendations shall govern.
d. The minimum distance from bottom row of lag screws or bolts to the top edge of the ledger shall be in accordance with Figure R507.9.1.3(1).

For SI: 1 inch = 25.4 mm.

FIGURE R507.9.1.3(1)
PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS

For SI: 1 inch = 25.4 mm.

FIGURE R507.9.1.3(2)
PLACEMENT OF LAG SCREWS AND BOLTS IN BAND JOISTS
507.6 Deck joists. Maximum allowable spans for wood deck joists, as shown in Figure R507.6 shall be in accordance with Table R507.6. The maximum joist spacing shall be limited by the decking materials in accordance with Table R507.7. The maximum joist cantilever shall be limited to one-fourth of the joist span or the maximum cantilever length specified in Table R507.6, whichever is less.

**Table R507.6**

<table>
<thead>
<tr>
<th>SPECIES*</th>
<th>SIZE</th>
<th>ALLOWABLE JOIST SPAN*</th>
<th>MAXIMUM CANTILEVER*†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SPACING OF DECK JOISTS</td>
<td>SPACING OF DECK JOISTS WITH CANTILEVERS*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(inches)</td>
<td>(inches)</td>
</tr>
<tr>
<td></td>
<td>2 x 6</td>
<td>9-11  15  21</td>
<td>12  16  24</td>
</tr>
<tr>
<td>Southern pine</td>
<td>2 x 8</td>
<td>13-1  11-10  9-8</td>
<td>2-1  2-3  2-5</td>
</tr>
<tr>
<td></td>
<td>2 x 10</td>
<td>14-2  14-0  11-5</td>
<td>3-4  3-6  2-10</td>
</tr>
<tr>
<td></td>
<td>2 x 12</td>
<td>16-0  16-6  13-6</td>
<td>4-6  4-2  3-4</td>
</tr>
</tbody>
</table>

*see manufacturer’s recommendations for additional requirements

---

**Joist-to-Beam Detail**

![Diagram of joist-to-beam detail]

**Girder Spans**

**Table R803.7(3)**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>SUPPORTING ROOF</th>
<th>SUPPORTING FLOOR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GROUND SNOW LOAD (psf)</td>
<td>DEPTH OF PORCH (feet)</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>2 x 6</td>
<td>7-4</td>
<td>5-8</td>
</tr>
<tr>
<td>2 x 8</td>
<td>10-1</td>
<td>7-7</td>
</tr>
<tr>
<td>2 x 10</td>
<td>12-4</td>
<td>9-4</td>
</tr>
<tr>
<td>2 x 12</td>
<td>14-4</td>
<td>10-10</td>
</tr>
</tbody>
</table>

* Spans are given in feet and inches
* Tabulated values assume 37 square lumbers, 6 1/4 inch wide and 1 inch thick for 4 x 4's. Use 30 pound ground snow load for areas in which ground snow load is less than 30 psf and the roof live load is equal to or less than 30 psf
* Porch depth is measured horizontally from bottom face to centerline of the header. For depths between those shown spans are permitted to be interpolated
Guard Detail

- New or existing Light required
- Open guards on decks more than 30 inches above grade or floor below shall have members spaced so that a 4" diameter sphere cannot pass through.
- Openings for required guards on the sides of stair treads shall not allow a 4 3/8" diameter sphere to pass through.
- Stairway Rises:
  1. Stairway shall be not less than 33 1/4" in width.
  2. Stairway risers shall be no 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 run of the stair.
  5. Stairs are required to be illuminated.
  6. Open risers are permitted if the opening is less than 4'.
  7. Tread nosing shall be not less than 3 1/4" but not more than 1 1/4" on stairways with solid risers. Except when treads are 1 1/2" or more.
  8. Composite materials may require additional stringers.

Handrail Detail

- 4x4 post, typical DO NOT NOTCH
- 2x2 baluster, typical
  - 2x6 or 5/4 bored rail cap: attach to guard post with (3) #12 by 3" long screws or (3) 18d threaded nails with 0.148" nominal diameter
  - 2x4 top and bottom; attach to guard post with (2) 8d threaded nails or (2) 8d wood screws x2-1/2 long on inside face
  - minimum nominal 2x6 rim or outside joist
  - attach balusters at top and bottom with (1) 8d wood screw or (2) 8d post-frame threaded nails with 0.135" nominal diameter

- Faster handrails per manufacturer recommendations
**Post to Girder**

**R507.5.2 Deck beam connection to supports.** Deck beams shall be attached to supports in a manner capable of transferring vertical loads and resisting horizontal displacement. Deck beam connections to wood posts shall be in accordance with Figures R507.5.1(1) and R507.5.1(2). Manufactured post-to-beam connectors shall be sized for the post and beam sizes. Bolts shall have washers under the head and nut.

- **Figure R507.5.1(1)**
  - **Deck beam to deck post**
  - 1 inch = 25.4 mm.

- **Diagram**
  - Beam splice (if required) must occur over post.
  - Approved post cap.
  - Minimum 2" for single ply beam.
  - Minimum 2 1/2" for multiple-ply beam.
  - (2) 1/2" diameter through-bolts or approved equivalent connector.
  - Post notch for full-beam bearing.
  - Beam splice with 2".
  - Less than 6".
  - 2 1/4".
  - 1/2".

- **Notes**
  - 5 1/2" minimum for beam splices (if required).

---
Guard Detail

Stairway Notes:
1. Stairways shall be not less than 36" in width.
2. Staircase risers shall be no greater than 7 3/4".
3. Stairway treads shall have a minimum run of 10".
4. The length of the run and the height of riser shall not vary more than 3/8" in the run of the stair.
5. Stairs are required to be illuminated.
6. Open risers are permitted if the opening is less than 4".
7. Tread nosing shall be not less than 3 3/4" but not more than 1 1/4" on stairways with solid risers.
8. Except when used as handrails, open risers are required to be illuminated.

Composite material used shall require additional stringers.

Guard Required if more than 30°

Guard required if more than 30°

Deck

Guard

36" min. height

Handrail (See Details)

Landing some width of stairs

Finished grade

Stairway Details:
- 2x4 baluster, typical
- 2x6 or 6/4 board rail cap: attach to guard post with (3) #12 by 3" long screws or (3) 16d threaded nails with 0.148" nominal diameter.
- 2x6 top and bottom; attach to guard post with (2) 8d threaded nails or (2) #8 wood screws 1" long on inside face.
- Minimum nominal 2x8 rim or outside joist attach balusters at top and bottom with (1) #8 wood screw or (2) 8d post-frame threaded nails with 0.135" nominal diameter.

Handrail Detail

Flexible handrails for manufacturer recommendations.

1" min.

1" min.

1 1/2" min.

2" min.

1 1/4" - 2 1/2"

1 1/2" - 2 1/2"

Nonscircular:
Perimeter: 4" - 6 1/2"

Circular:
Perimeter: > 6 1/2"

Recessed:
[31.1.7.7.3 Type I]

Nonscircular:
Perimeter: 4" - 6 1/2"

Circular:
Perimeter: > 6 1/2"

Recessed:
[31.1.7.7.3 Type II]
R507.5.2 Deck beam connection to supports. Deck beams shall be attached to supports in a manner capable of transferring vertical loads and resisting horizontal displacement. Deck beam connections to wood posts shall be in accordance with Figures R507.5.1(1) and R507.5.1(2). Manufactured post-to-beam connectors shall be sized for the post and beam sizes. Bolts shall have washers under the head and nut.

1 inch = 25.4 mm.

FIGURE R507.5.1(1)
DECK BEAM TO DECK POST