Vocabulary

The main elements of a stair project are very similar to decks, but also include: the concrete footings, posts, concrete pad, stringers, decking and railing

1) **Stringers –** PT 2x6s that support the ramp's decking.
2) **Purlin –** PT 2x6 attached to posts to support stringers that have to be cut.
3) **Concrete transition –** pad that tapers from the top of the decking to the concrete pad.

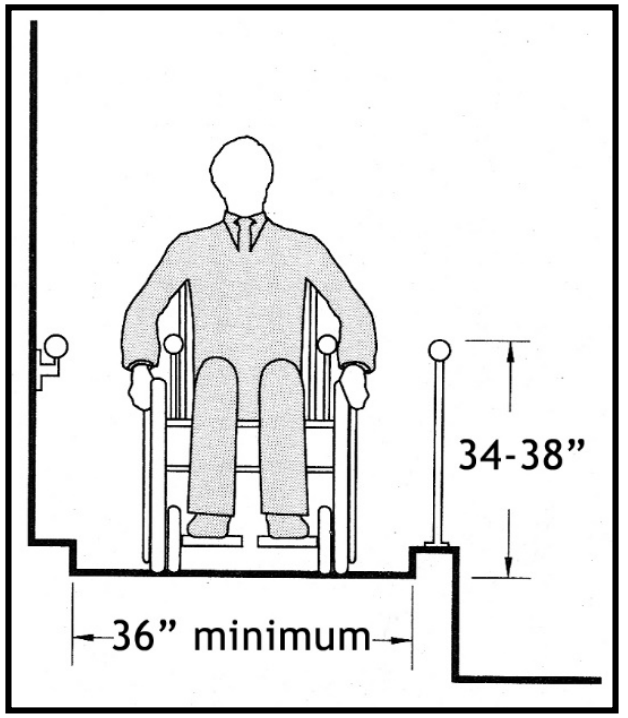


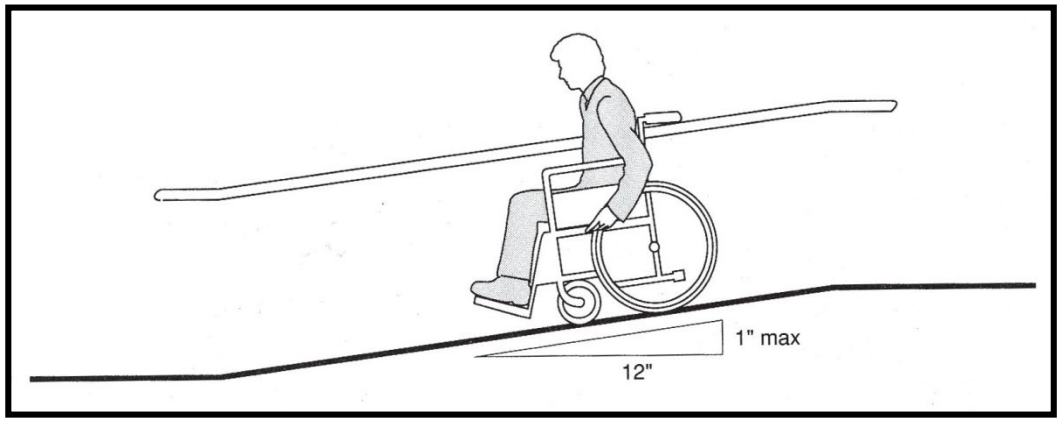
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Ramp Code

- A ramp must have at least **36” in width** clear on the inside of the railings.
- A ramp must also have a railing **34 to 38”** from the top of the decking to the top of the handrail. Keep in mind that this is shorter than a guard for a deck.
- A ramp must have a slope of **1:12** or shallower. This means for every inch in rise from the ground, one foot of run must be provided.

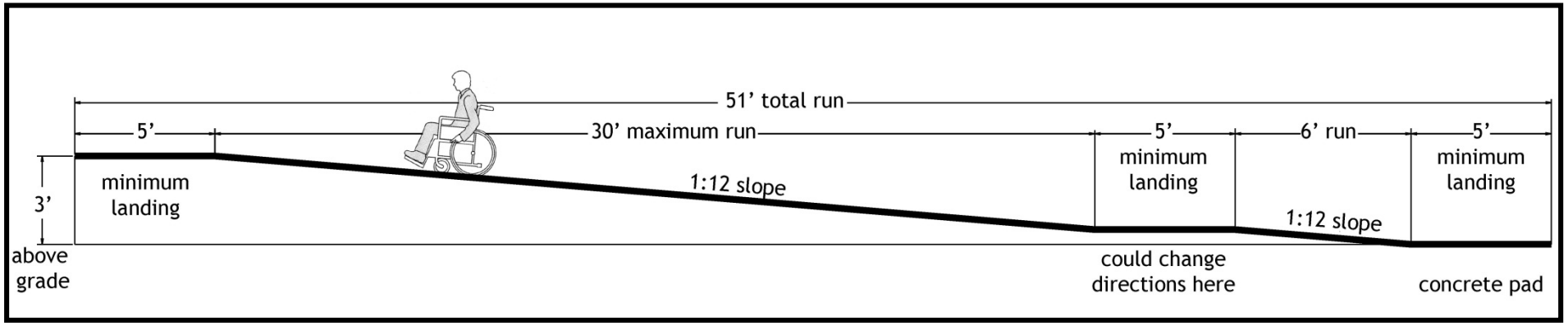




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Ramp Code

- Another code requires there to be a landing for every **30” in rise**. A **landing** is defined as a flat part of the ramp which is level, not at a slope. A landing must be at least **5’ long and the same width** as the ramp.
- There must also be a landing at the top and bottom.



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Ramp Code

- Posts between the landings can be a maximum of **6’** o.c. apart. Posts are PT 4x4s.
- Instead of a frame and joists along the slope, **stringers** are used to support the decking. Stringers are made of **PT 2x6s pressure treated lumber**.
- Stringers are spaced no more than **24” o.c.**; if a ramp is between three and four feet wide, three stringers are needed.
- Stringers are connected to the frame of the landings with joist hangers. The outside stringers are bolted to the posts; the middle stringers are supported by purlins.
- **Purlins** are **PT 2x6s** that are bolted to the posts underneath the stringers.
- Stringers are connected to the purlins with **hurricane ties**.
- If there is a seam in a stringer, it needs to be at a post where a purlin can support a stringer on both sides of the seam.

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Steps to build an SSP ramp:

1. Clear the surrounding area
2. Set layout and dig post holes
3. Construct top landing*
4. Construct intermediate landing(s)
5. Locate the bottom landing and bottom ramp posts
6. Install the ramp posts
7. Cut and attach the outside stringers
8. Cut and attach middle stringers and purlins
9. Install decking
10. Prep and pour concrete pad
11. Prep and pour concrete transition
12. Complete handrail

*These slides will only cover steps involved in stairs; refer to Chapter 8 on decks to review the prerequisite steps

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1. Clear the surrounding area

- De-nail any lumber removed and pile debris out of the way.



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2. Set layout and dig post holes



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3. Construct top landing

- If a deck or landing doesn't already exist, start by building the top landing.
- Follow instructions from "How to construct a deck" section.



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4. Construct intermediate landing(s)

- Build these landings according to the plan just like the top landing, but at their respective heights in relationship to their location in the ramp.



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5. Locate the bottom landing and the bottom ramp posts

- Using the same method as in step 3, find the location where the ramp slope meets the ground.
- Lay a 2x4x5’ flat on the ground at this (intersection) point, perpendicular to the ramp, to use as a reference line and secure it in place with stakes.
- Measure 5’8” back towards the intermediate landing to locate the center of the last pair of wood ramp posts.



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6. Install the ramp posts

- Mark the locations for each pair of posts in the sloping section of the wood ramp
- Make sure that the posts are in line and square with the other posts.
- Pour the concrete footings and set the post bases. Make sure the posts are plumb.
- Attach the header to the last two posts of the wood ramp with two 6” bolts, washers, and nuts.



Chiloquin 2016

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7. Cut and attach outside stringers

- Cut the PT 2x6 stringers to length; any seams in the stringers must occur at a post.
- Cut the ends of the stringers to match the angle where they meet a landing and the header at the end of the ramp.
- Attach the outside stringers with one 6” x ½” zinc plated bolt, nuts, and washers.



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8. Cut and attach middle stringers and purlins

- Pressure treated 2x6 purlins are attached between posts to support the middle stringer (circled in picture).
- Cut them to length and attach to each post underneath the stringers with two 4 ½” bolts and nuts. Use hurricane ties to attach the middle stringers to the purlins (use joist hanger nails).
- The middle stringer attaches to the header at the end of the wood ramp with a 2x4 joist hanger (1 ½” below the top of the header).
- If there is a seam between stringers, use two purlins, one on either side of the post.
- Secure all seams in middle stringers together with a metal tie plate.

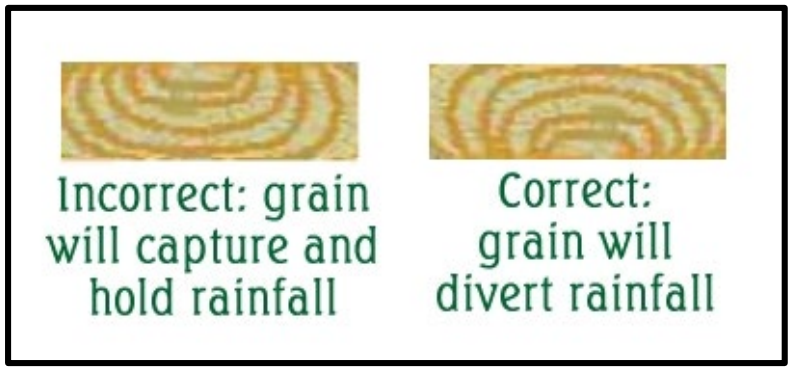


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9. Install decking

- Cut the ramp decking to size. Stain all 6 sides before screwing onto the stringers.
- Place the decking so that the grain is oriented like the diagram below to allow water to drain.
- Use two screws per stringer no closer than ½” from the edge of the lumber, spacing the boards ⅛” apart to allow for water drainage (use 16d nails as spacers).





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10. Prep and pour concrete pad

- Use 16d nails and 2x4 lumber to build the formwork, with dimensions equaling the width of the ramp (check the plan; usually 4’ wide) by 5’ long.
- Lay the formwork on the ground 5’ 3 ½” from the header at the end of the wood ramp. This will make the distance between the concrete pad and the header 5’ 5”.
- Place welded wire into the middle the formwork.



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11. Prep and pour concrete transition

- When the pad has cured for at least 24 hours, strip away the formwork.
- Create the sides of the transition by clearing dirt away from the ramp header and pad.
- Stake two 5’ 5” long 2x4s between the pad and the header. They must be the width of the ramp (usually 4’) apart *on the inside*.
- Use a circular saw to cut a 2x4 into a triangle to fit into the new gap between the form and the grade.
- Place hog wire in the middle.
- Pour concrete.

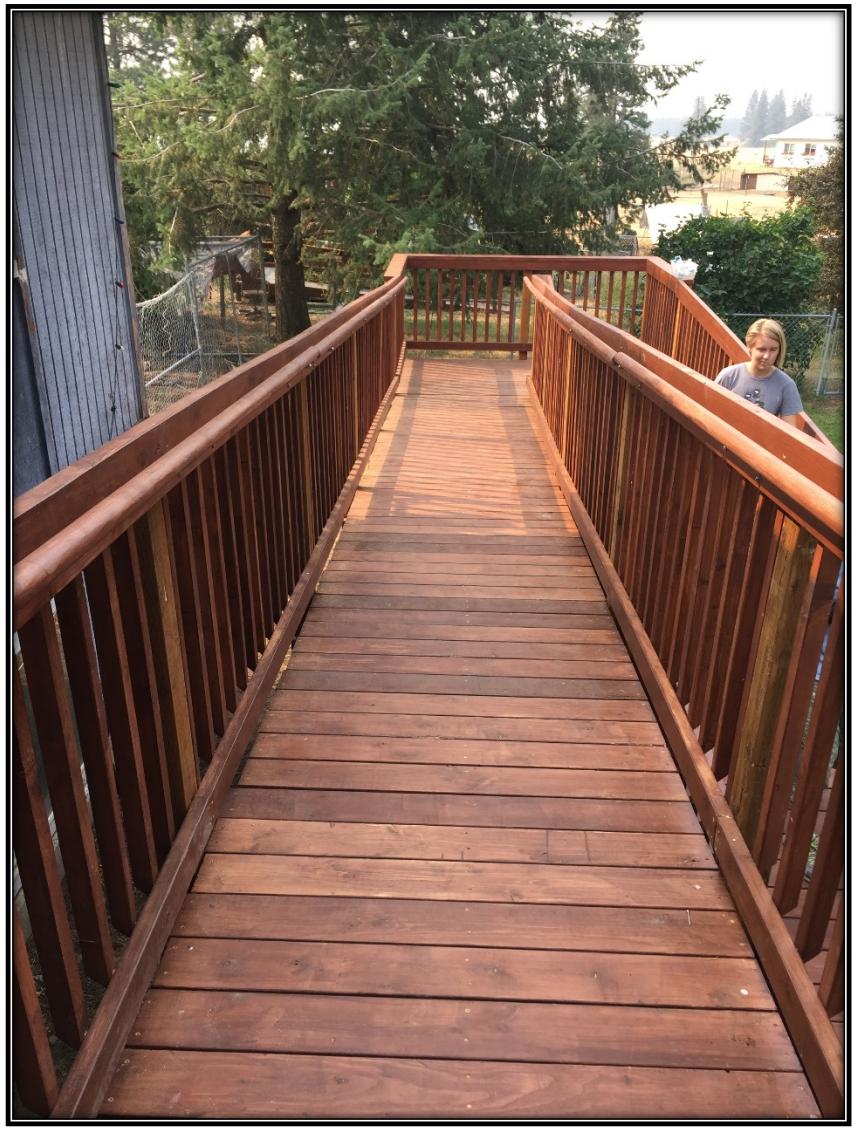


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12. Complete handrail

- All parts of the handrail are attached with decking screws.
- Install a DF 2x6 to the inside of the posts so that it sticks up 1 ½” above the top of the posts.
- Attach handrail brackets to the DF 2x6 every 4’ and one at the very end of the ramp. Make sure that the top of the handrail will be 34-38” above the top of the decking.



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12. Complete handrail

- Install DF 2x4s to the inside of the posts 3 ½” above the decking on the ramp.
- Between the top and bottom rail, DF 2x2 balusters are attached 3 ½” apart.



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