# HOW TO BUILD A HOME ACCESS RAMP: PART 1

**Skill Level: ADVANCED** Try these projects after you have a collection of DIY successes under your belt, and make sure you're ready for a challenge. You'll need experience with a wide variety of specialized tools, and it may take several days to finish. If you've built a deck or installed an irrigation system, these projects probably match your abilities.

If you live with or care for someone who has limited mobility, an access ramp can make getting in and out of the house much easier. In this four-part series, you'll learn the essential steps for building a home access ramp. In this part, you'll learn how to design the ramp and mark the layout. In Part 2, you'll learn how to set the posts, and build the framing. Part 3 covers installing the decking and building the platform railings. Part 4 will show you how to finish by installing the ramp railings.

Following these instructions are diagrams for the ramp in the accompanying video. Use them as reference and as a guide to help design your ramp.

## MATERIALS AND TOOLS (for Part 1):

- [ ] Tape Measure
- [ ] Graph Paper and Pencil
- [ ] 2" x 8" Treated Lumber (for ledger board, if needed)
- [ ] Power Saw
- [ ] Screws or Lag Screws
- [ ] Drill and Bits
- [ ] Socket Wrench and Sockets (if needed)
- [ ] Batterboards (furring strips and screws)
- [ ] Dead Blow Hammer or Rubber Mallet
- [ ] Mason's String
- [ ] Shovel
- [ ] Sod Remover (optional)
- [ ] Marking Paint (optional)
- [ ] Plumb Bob (if needed)
- [ ] Carpenter's Level
- [ ] Line Level (if needed)
- [ ] Safety Glasses

## PREPARATION

01 Check local building codes or with your homeowner's association for requirements and permits for building ramps. Note that building department inspections may be required at various phases of construction.

02 As needed, call 811 to contact local utility companies. They will mark any underground lines before you start digging.

03 Read instructions for all steps to building an access ramp before beginning: planning, layout, installing posts, framing, decking, and railings.

## PLANNING AN ACCESS RAMP

01 Verify that the door to be accessed with a ramp is wide enough for a wheelchair and easily accessible from the outside. Make sure that trees, a garage or other structures won't interfere with access.

★ TIP

Use existing structures, such as a deck or porch, if available.

**IMPORTANT**

Before installing an access ramp, check with the local building department and homeowner's association to see if a building permit is required and whether there are specific requirements. Before digging post holes, call 811 for information on underground utilities on the property that could be damaged by digging. If you have additional questions, discuss the job with a Lowe's associate or call a professional for help.

# PLANNING AN ACCESS RAMP (cont.)

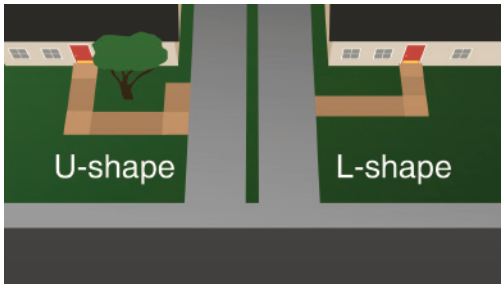
02 Measure the distance from the ground or sidewalk to the bottom of the access door. This will help determine your ramp length. The higher the doorway is off the ground, the longer the ramp will need to be.

- Be sure to consider any obstructions and slope of the yard. If your yard is sloped, you'll need to measure the total drop from the bottom of your access door to your landing point. (fig. 1) See Page 04, Step 07 for details.
- For long ramp runs, consider building a ramp that extends from the door down to a platform, then changes direction in an L- or U-shape. (fig. 2)

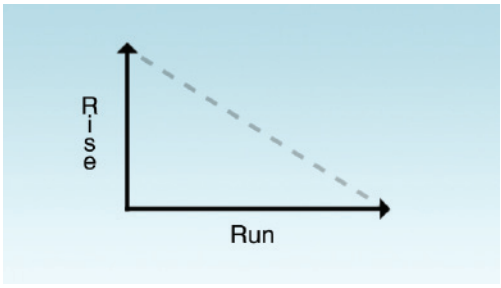
(fig. 1)

03 Determine the slope of the ramp: the ratio of the rise (vertical height) to the run (horizontal length). (fig. 3) The Americans with Disabilities Act (ADA) recommends that an access ramp rise 1" for every 12" in length, a 1:12 slope. Example: If the door entry is 24" above ground, the ramp should be at least 24' feet in length. If needed, a 1:20 slope will make it easier to climb. Also, for motorized wheelchairs or scooters, check the owner's manual for maximum slope recommendations.

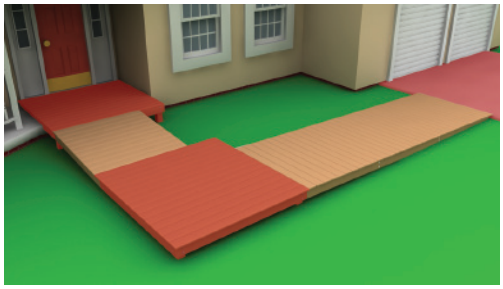
04 To make the ramp easier to maneuver, use rest platforms to break the ramp sections. These platforms should be 60" x 60" to give wheelchair or crutch users an opportunity to rest or turn if needed. Include a flat platform near the doorway where the user can safely stop to open the door, and make sure there is sufficient flat area at the end of the ramp. If needed, build a landing platform. (fig. 4) The ADA recommends no more than 30' of sloped distance between flat landings.




(fig. 2)



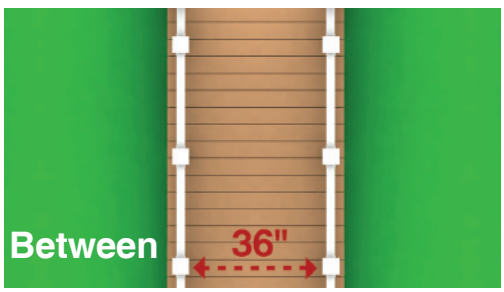

(fig. 3)



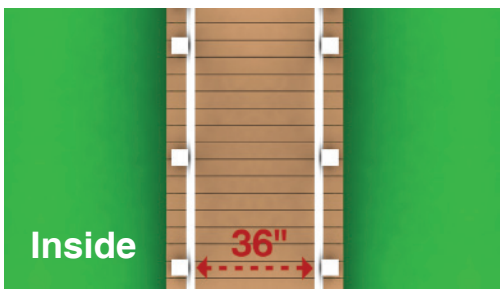
(fig. 4)

05 Plan the ramp width.

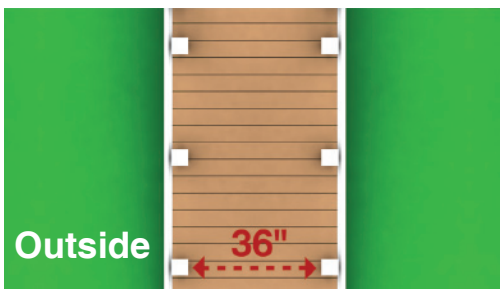
- The ADA recommends a minimum distance of 36" between the rails.
- The railings can be mounted in between, inside or outside of the posts. If you mount them inside the posts, be sure that the minimum distance between them is 36". (fig. 5, 6 and 7)




(fig. 5)



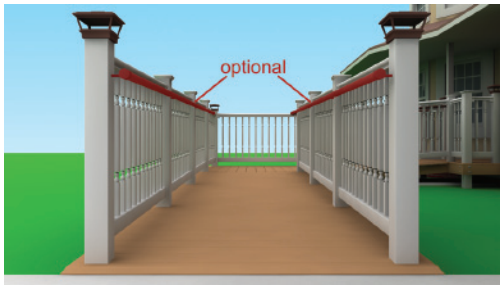

(fig. 6)



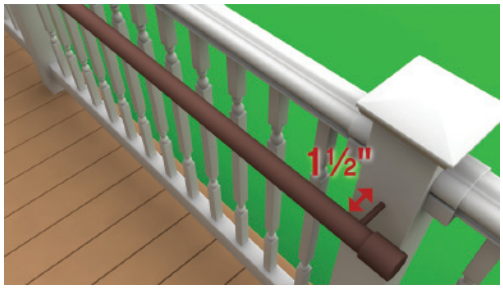

(fig. 7)

# PLANNING AN ACCESS RAMP (cont.)

- Optional safety handrails can also be helpful. (fig. 8) Some municipalities require safety handrails, so check your local codes. Typical safety handrails are 1-1/2" in diameter, and mounted to the posts with 1-1/2" clearance. (fig.9) With that in mind, to keep the distance between handrails 36", the width of the ramp will need to be at least 42". (fig.10) Safety handrails should be on both sides of the ramp sections, and on the inside of doglegs or switchbacks. (fig. 11)




(fig. 8)




(fig. 9)

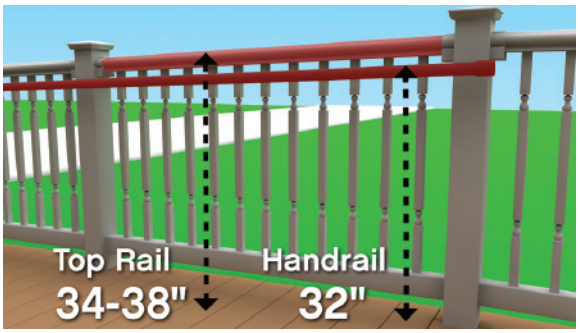

(fig. 10)

(fig. 11)

- The top rail height should be 34"-38" from the deck surface. (fig. 12) If you're using the safety handrail, mount at least 32" above the deck surface with a 1-1/2" space between the grab bar and its mounting surface.

**TIP**

For safety, use balusters or spindles along the railings and add a bottom rail, curb, or crutch stop on both sides of the ramp.




(fig. 12)

06 Select materials as needed.

- Treated lumber or rot-resistant lumber will require maintenance every few years. Wherever the ramp will be in contact with the ground, you must use treated or rot-resistant lumber.
- Composite materials require less maintenance. Consider using treated or rot-resistant lumber for the frame and finish with composite decking and railings. Ask a Lowe's associate for assistance.

# PLANNING AN ACCESS RAMP (cont.)

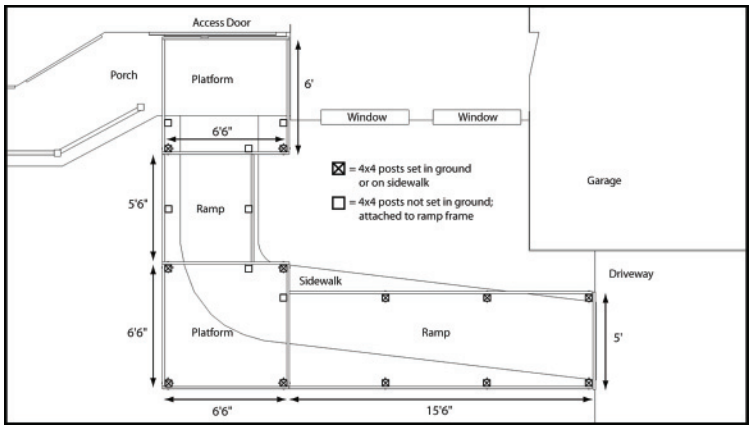
07 Determine the length of your ramp by measuring the height from the ground to the threshold of your door. If you door is 16" from the ground, you'll need a ramp that is at least 16' in length.

- If the end of your ramp will be over a slope in your yard, you might need to extend the length.

1. Use a mason's string to extend a level line from the threshold to the edge of the slope.
2. Measure the height from the ground to the line. Use this to determine your ramp length. It might be easiest to use an L- or U-shape design to avoid the slope. (fig. 13)

(fig. 13)

08 Select a ramp design that will work best for you. Draw a plan of the ramp design and measurements to scale on graph paper. Mark the dimensions of each section and label post locations. (fig. 14)




(fig. 14)

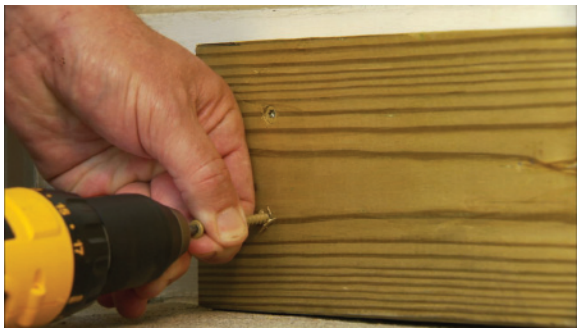
# LAYING OUT AN ACCESS RAMP

To begin the construction, you'll need to mark the post locations. Use batterboards and mason's string to mark the layout. Batterboards can be made from furring strips and screws.

01 Begin with the platform next to the access door. Measure down the thickness of the decking from the threshold, and mark a level line.

02 Attach a ledger board below that line at the door. (fig. 15)

- If your ledger board will be load-bearing, meaning it will not sit directly on an existing porch, step or deck surface, be sure to use lag screws to attach it to the house.



(fig. 15)

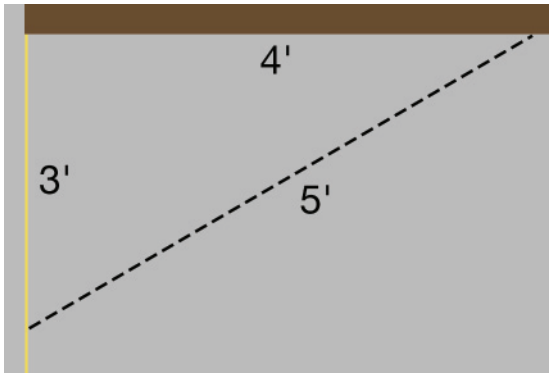
# LAYING OUT AN ACCESS RAMP (cont.)

03 Place two batterboards beyond each corner of the platform.

04 Attach a temporary screw to the end of the ledger board, and stretch mason's string between the screw and the batterboards to outline the platform foundation.

05 Square the string to the batterboard using the 3-4-5 method: (fig. 16)

- Measure 3' along the string and mark it.
- Measure 4' along the ledger board and mark it.
- Measure the distance between the two marks and adjust the strings on the batterboard until the distance between the marks is 5'.

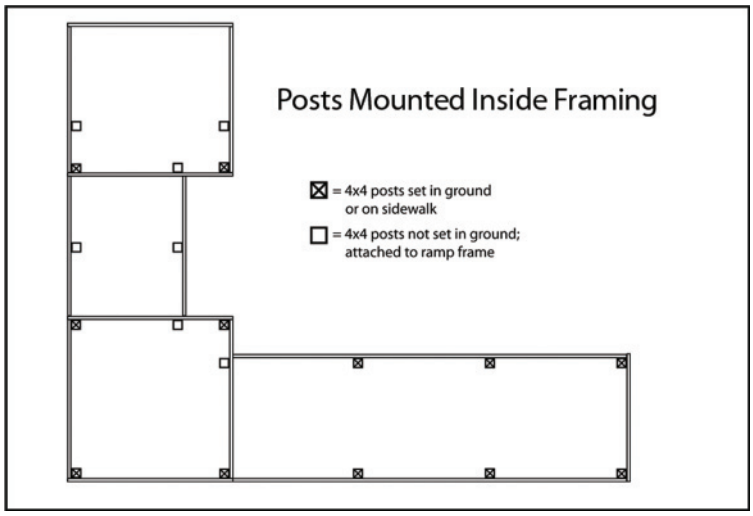



(fig. 16)

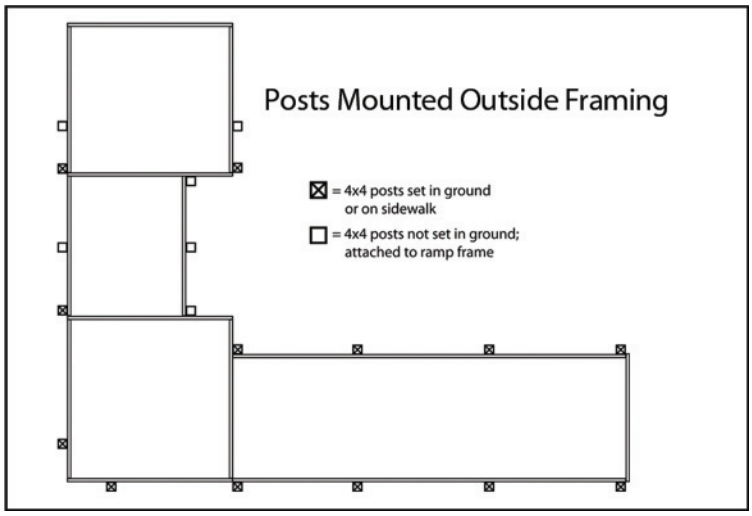
06 Measure along that string the length of the ramp platform.

07 Square up the other side of the platform using the same method.

08 If your posts will mount inside the framing, adjust the strings to account for the thickness of the framing on the outside of the posts. Your strings should cross where the corner of the post will be located. (fig. 17, 18)




(fig. 17)




(fig. 18)

# LAYING OUT AN ACCESS RAMP (cont.)

09 Lay out the other sections of your ramp.

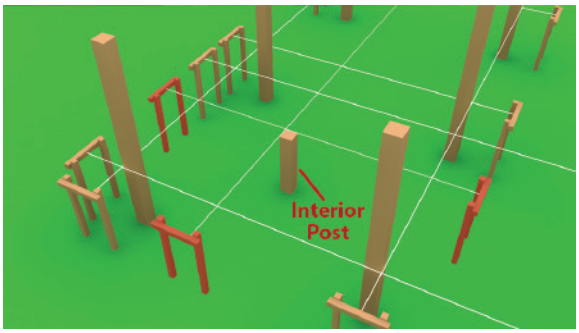
10 Mark the string location on the batterboards, then untie the strings and set them aside for later use.

11 Remove sod or dirt as needed.

12 If you need an interior post to support a platform, measure the location along the outer strings, and set up batterboards and mason's string to mark the post location. (fig. 19)

13 If your ramp is high off the ground, it might help to use a plumb bob to mark post locations.

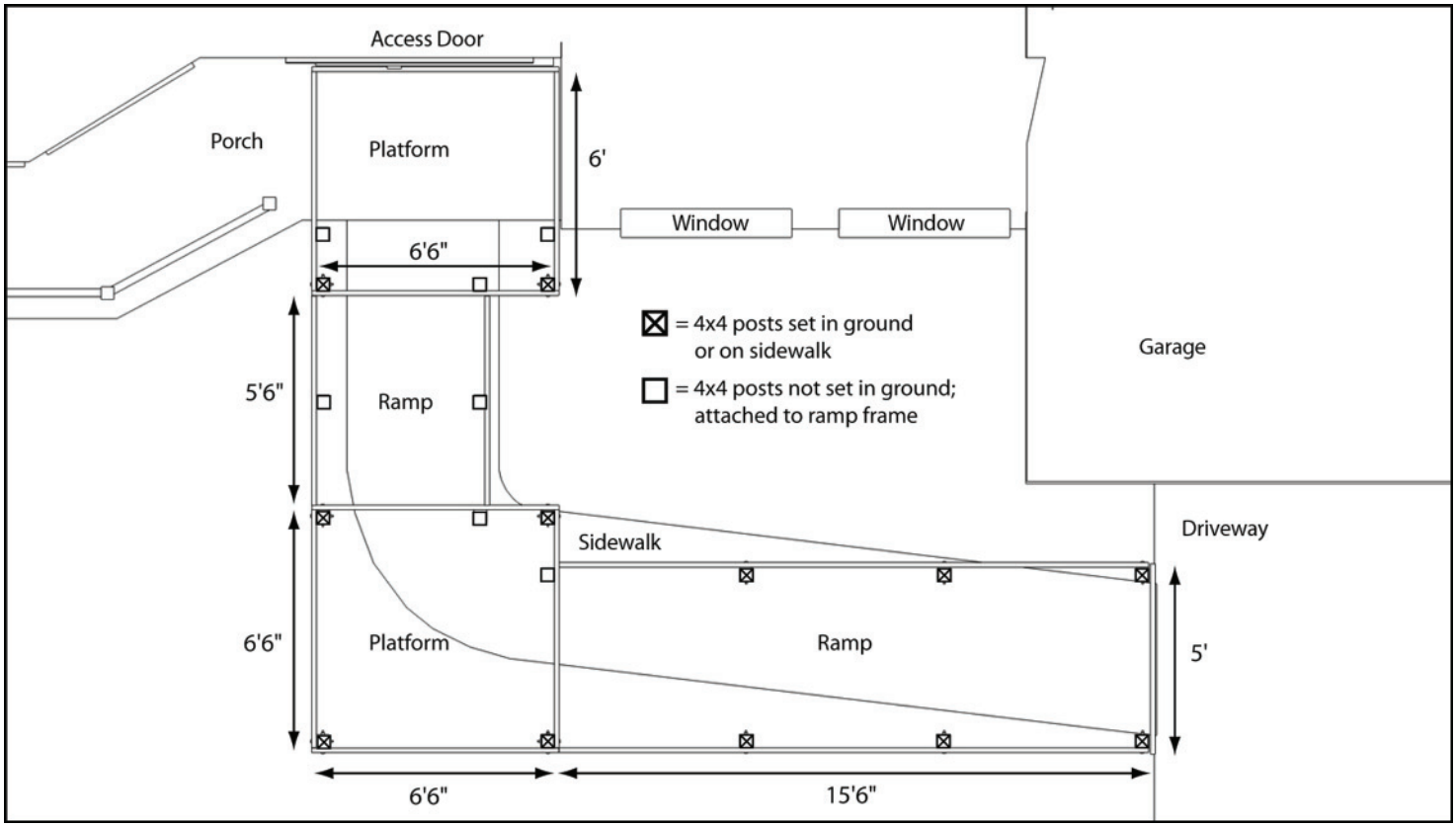
1. Retie the strings to mark post locations.
2. Drop a plumb bob and mark the post locations.



(fig. 19)

# DIAGRAMS

The following diagrams are for the ramp built in the accompanying video *How to Build a Home Access Ramp*.



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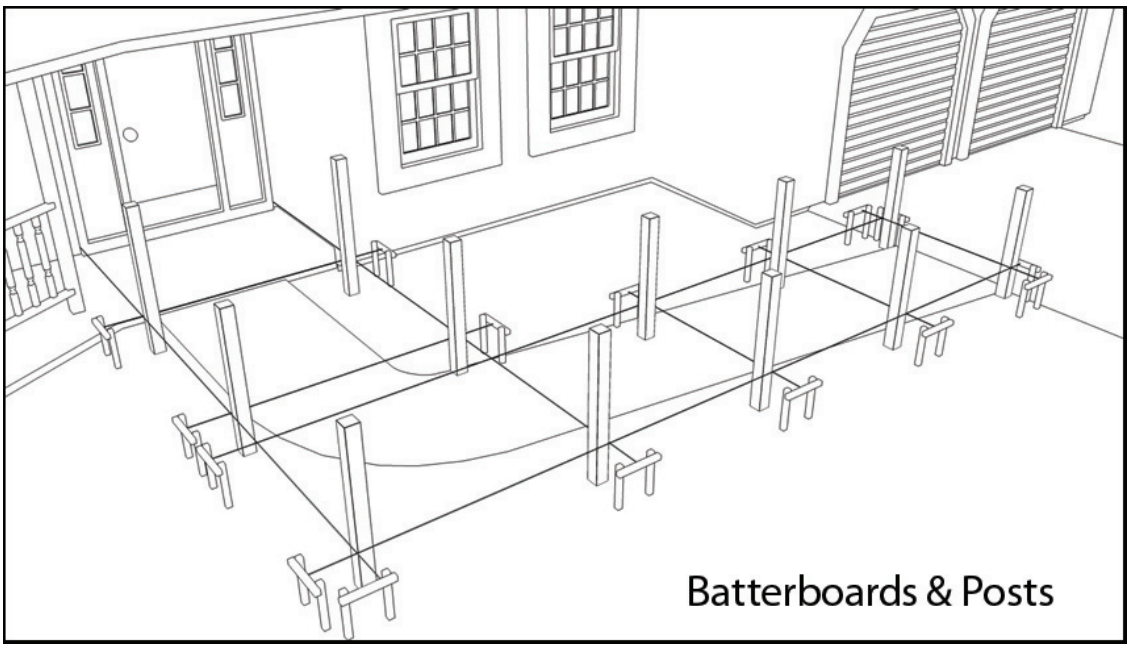


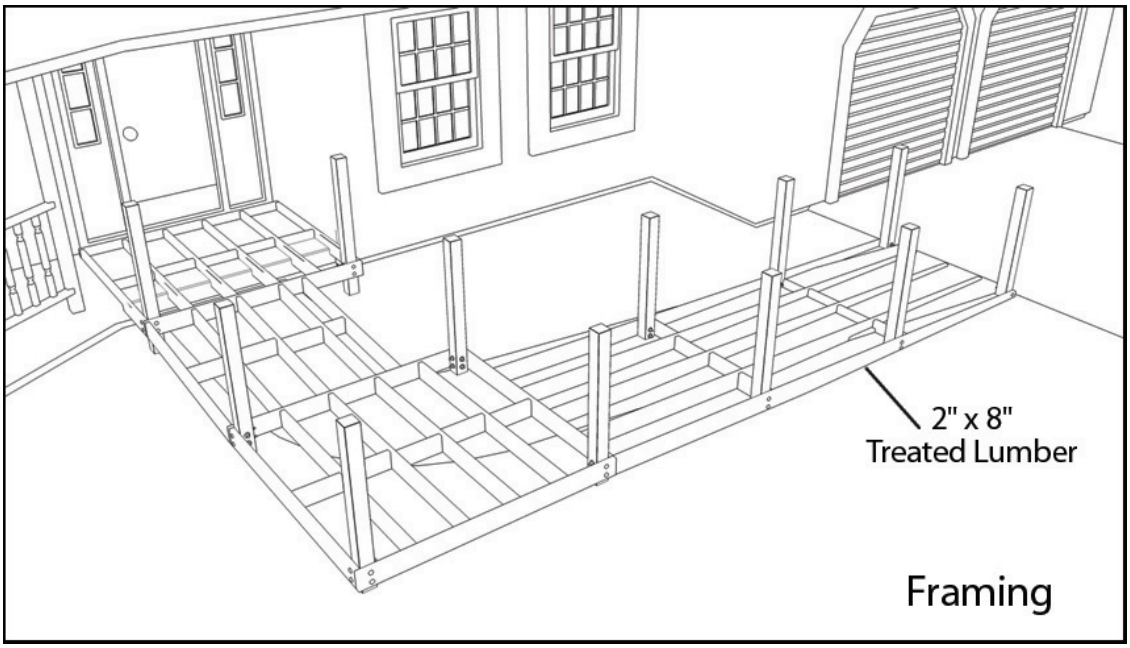

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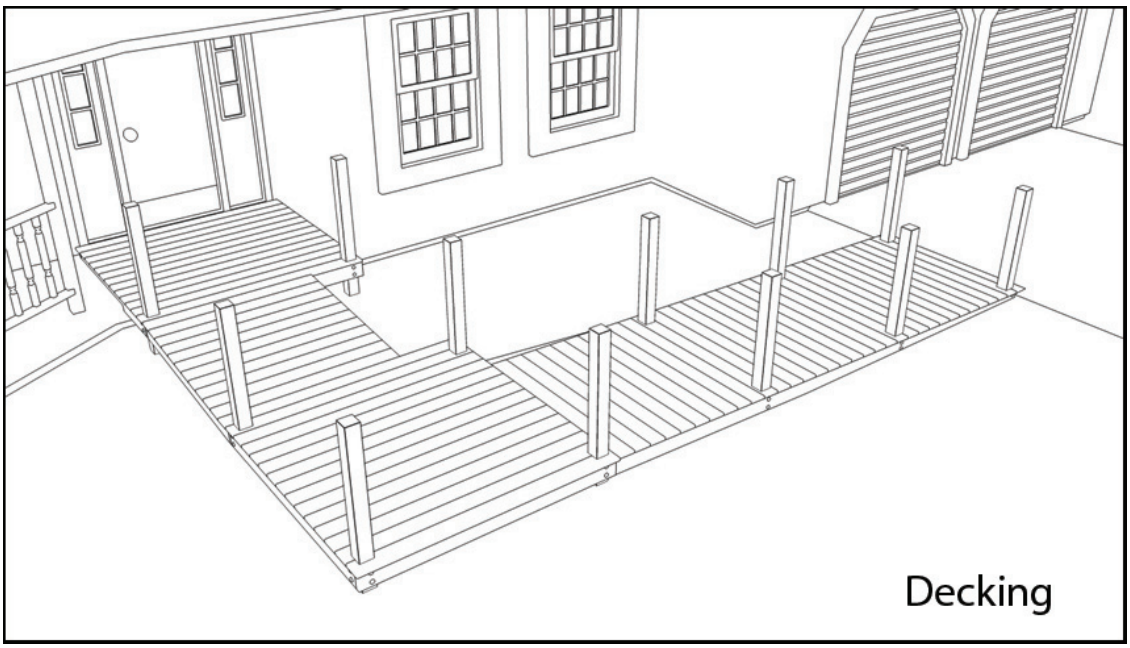


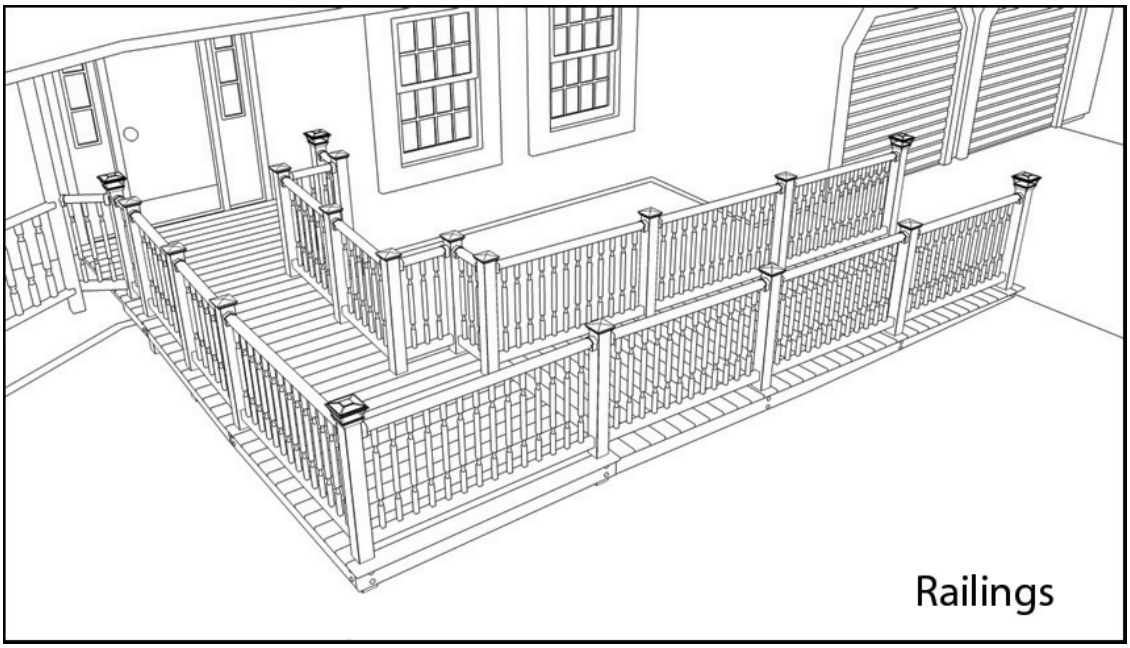

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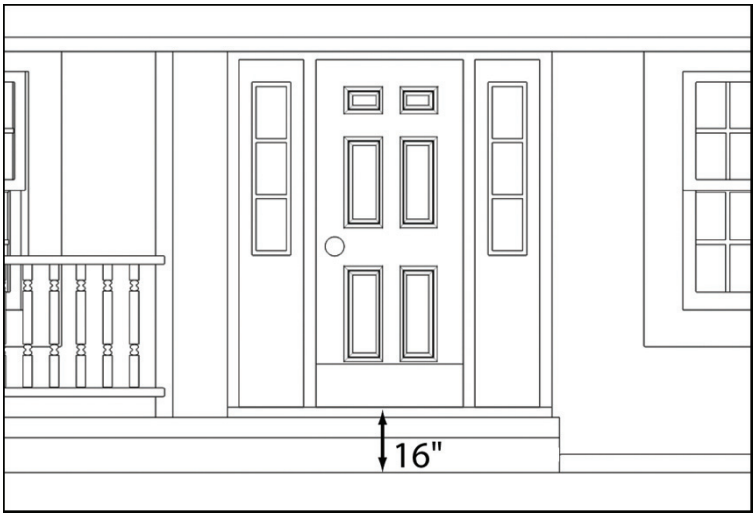


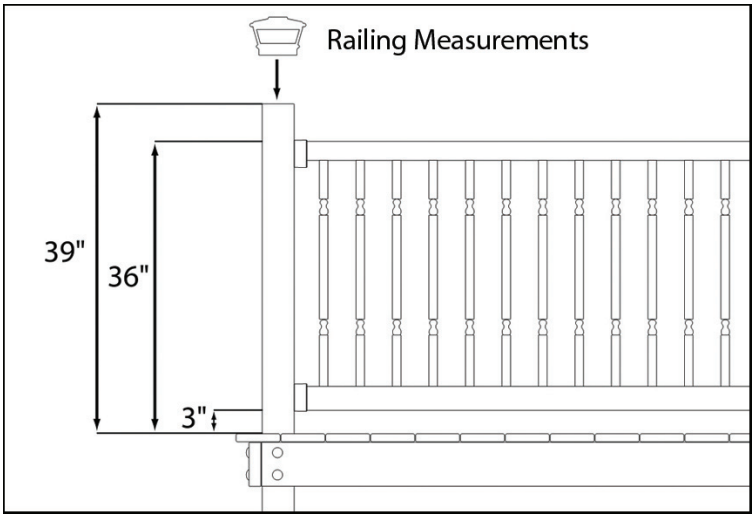


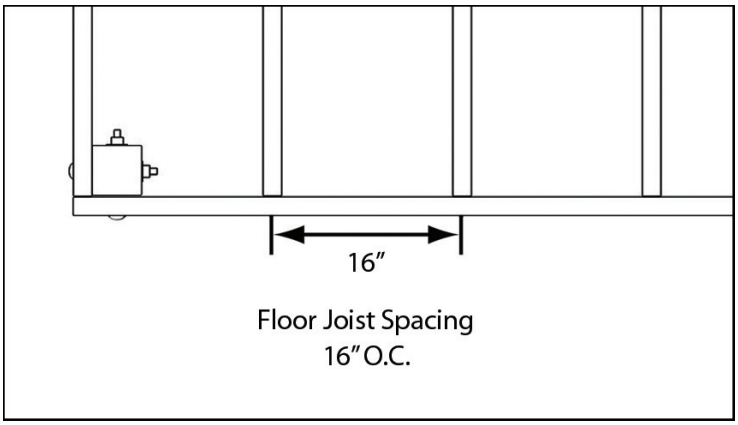


Now that you have your layout marked, you can set the posts. See the steps in Part 2 of *How to Build a Home Access Ramp* at **Lowes.com/Videos**.