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Ramps for the Handicapped

by Larry Haun on January 14, 2011

Volunteer work: good for the community and good for the soul

One of my first memories, in the early 1930s, when I was 4 or 5 years old, was of our mother taking care of a neighbor woman, Eula Hughbanks, who had <u>tuberculosis</u>. TB was more common in those days, with little hope for a cure, especially for poor people. The nearest medical care of any kind was 30 miles away. Such care might as well have been on the other side of the world for most of us, as few had an automobile. So people did what people have always done, especially in hard times—they took care of one another.

Our mother took her friend food—liquid soups mainly—and helped her to bathe and wash her hair. It takes some time to die of TB, so this caring went on for several years, if I recall correctly. The winters were long and hard in Western Nebraska. Snow, along with killer winds, often arrived in September and didn't leave the ground until April or May. When summer came with blessed sunshine, people would take our mother's friend outside to soak up a bit of those warm and healing rays.

Of course, no one had a wheelchair, but the men had built a simple ramp to make it easier to carry her from her bed in the house to a rocking chair set out in the yard. I can still recall her smile as the heat soaked into what was left of her body. She was, as they say, "as thin as a rail." I can't help but wish I had a picture of not only her, but also of that primitive ramp made from weather-worn boards.

No one had money to buy real materials. The nails used to fasten boards together came from a burned out house nearby. Most everyone in that town of 85 inhabitants, including me, used to sort through those ashes looking for nails. Many of the nails were the old, square kind that, once found, were straightened and reused.



Government programs can help

Fortunately, these days we don't have to beg for some used boards and found nails to construct a decent ramp. Here in the state of Oregon (and other states), there is a program that offers up to \$1,000 (every two years) for people on Medicaid who have special needs. These needs can be anything from helping them obtain certain foods, installing grab bars, widening doorways, or building wheelchair ramps. Here on the coast, we use the money for materials and do the construction with volunteer workers.

Most states offer a program to help keep disabled persons in their home because it saves them thousands of dollars. There is a big difference in cost between keeping a person in their home and putting them into a caregiving or assisted living facility.

Before the passage of the <u>Americans with Disabilities Act</u> in 1990, little or no thought was given to the civil rights of people with disabilities. I have helped build literally thousands of apartments where the bathroom was fitted with a 24-in. door. Try getting a 27-in.-wide (minimum) wheelchair through a 24-in. doorway. Disabled people do have the right to get to the bathroom, no? They also have a right to be able to get out of their houses and into office buildings, shopping centers, hospitals, schools, and recreational facilities. Spend just one day in a wheelchair and you will understand why the Disabilities Act is so important to wheelchair-bound people.

According to Wikipedia, <u>Americans with disabilities</u> are one of the largest minority groups in the United States. About 1 in 5 of us living here has some kind of a disability, and 1 in 10 has a severe disability. Around 9 million people of all ages are disabled to the point of needing personal assistance for everyday activities. And there is somewhere near 1,600,000 people (including my oldest sister, along with many vets returning from Iraq & Afghanistan) who are confined to a wheelchair. I'm still swinging a hammer, but I'm 78, so who knows? It's probably not many years before I will need a ramp, too!

Permanent and Temporary Ramps

Many of the ramps that I have helped build are somewhat temporary, especially the ones we build for people under Hospice care. The average lifespan of a household ramp, so I have read, is 5 or 6 years. Once a ramp is no longer needed, it can be torn apart and the materials recycled.

Some people with disabilities spend their entire life confined to a wheelchair. I was once in graduate school with a young man who had a spinal injury from a car accident when he was 9 years old. He lived in a house with a strong, permanent ramp, along with a kitchen and bath that he could easily use. He even had an accessible automobile which allowed him to drive and live a pretty normal life.

Other people, like my mother, often spend the last years of their lives is a wheelchair. We built a safe, reliable ramp for her when she was living with my sister, Loretta, in Sacramento. It was a well-built ramp, but we knew that there was no need to build a permanent one. She used it for about 3 years before she died.

The differences between a permanent ramp and one that will be needed for only a few years are not many. Both need to be built structurally strong. On a "temporary" ramp, there is no need to sink the 4×4 posts that hold the joists and handrails into the ground and pour concrete around them. We set our posts on concrete blocks. If you pour concrete footings for this structure in a cold part of the country, the footings should go below the frost line. This can be up to 4 ft. deep.

Using treated lumber allows us, when necessary, to place the wood in contact with the ground. Treated wood, in most areas, will last for many years in this mode. Otherwise, most codes won't allow any wood to be closer than 6 in. to the earth.

Further, we don't often pour concrete landings at the bottom of the ramp. This is true especially if we can make a good landing out of earth or crushed rock.

Lastly, we put the majority of the structure together with screws that are easy to remove. Some screws, especially those that can rust, are next to impossible to remove.

Follow your building code

Rules for building a safe and stable ramp vary some from state to state and city to city. So be sure to check with your local building department before undertaking a project. The code for building a residential ramp can also be quite different from that used when building a ramp going into a public building.

In some ways there is no standard way to build a ramp. Much depends on the lot size and shape, and also the height of the entryway. At times, it may be best to build the ramp in the backyard rather than the front.

Ramp angle or slope

For ease of access, and to meet <u>ADA Guidelines</u> (Americans with Disabilities Act), the maximum slope of a ramp can not exceed 1 in. for every 12 in. of run.

(Click image to enlarge)

So, if a ramp needs to rise 14 in. to the entryway of a house, it will have to be 14 ft. long to maintain the proper slope. But at just under a 5 degree pitch, even a 1-in. rise over a 12-in. run is a bit steep—imagine the last time your truck climbed a 5 degree hill, fully loaded. Try wheeling or pushing a wheelchair up anything steeper, and see how hard it is.

Some people might need a ramp with an even more gradual slope. We built a ramp for an older couple that had a 1-in. rise for every 20 in. of run. She was able to push her husband up that slope with ease. That's why the ADA suggests lower slopes for ramps whenever possible. According to their guidelines (A4.8.2): "Ramp slopes between 1:16 and 1:20 are preferred. The ability to manage an incline is related to both its slope and its length. Wheelchair users with disabilities affecting their arms or with low stamina have serious difficulty using inclines. Most ambulatory people and most people who use wheelchairs can manage a slope of 1:16. Many people cannot manage a slope of 1:12 for 30 ft (9 m)."

In fact, if you read the ADA Guidelines, you might find the discussion of slope a little confusing, especially where it concerns maximum rise and maximum run. According to the guidelines, "If the slope of a ramp is between 1:12 and 1:16, the maximum rise shall be 30 inches (760 mm) and the

maximum horizontal run shall be 30 feet (9 m). If the slope of the ramp is between 1:16 and 1:20, the maximum rise shall be 30 inches (760 mm) and the maximum horizontal run shall be 40 feet" (4.8.2).

The point of the guidelines is simple: the maximum allowable rise is 30 inches, but the maximum run is limited, too: you don't want to force someone in a wheelchair to push themselves up a long steep hill, so steeper ramps must also be shorter, but in no case can you exceed a 40 ft. ramp.

Landing and Ramp Sizes

The width of the ramp needs to be at least 36 in. clear between handrails, so we make our ramps 48 in. wide. This seems best because it fully utilizes lumber that comes in 4 ft. multiples, which means less material waste.

ADA guidelines require level landings at the top and bottom that are at least 36 in. wide, though in some cases they have to be 42 in. wide, or even wider for swing-out doors. Landings must also be the width of the ramp leading to the landing. With 48-in. ramps and 48-in.-wide landings, we meet almost all ADA guidelines for landings. Landings also have to be 60 in. long. And every time you make a turn, like in an "L" or "U" shaped ramp, you need to build a 60 in. by 60 in. landing.

Handrails and materials

Handrails for ramps with more than a 6-in. rise are needed on each side with a height between 34 in. and 38 in. Some codes call for an intermediate rail at 18 in. Further, the ADA requires a 2 in. (minimum) curb at the bottom to keep a wheel from dropping off the edge.

And finally, ramps need to be stable, firm, and slip-resistant. Here in wet, coastal Oregon, we use pressure-treated, rot-resistant, 2x wood. You can also use composite or PVC decking. This stable material won't rot, but it is usually about twice the cost of treated wood.

Coastal Oregon gets 60 in. annual rainfall. Even without abundant rain or snow, it is not a good idea to use plywood for the decking unless you cover it with a slip-resistant material. Here on the coast, we use pressure-treated wood for the deck, but we still often finish it by rolling out 30-in.-wide, heavy, sand-coated roofing material. This is especially important when there is a danger that someone pushing a wheelchair might slip.

Treated Wood

Most ramps are built outside, where they are exposed to all kinds of weather. To keep the wood from deteriorating rapidly, we use wood (labeled ACQ) that has been pressure-treated (solution forced into the cell structure of wood) with a fungicide (copper) and an insecticide (quaternary ammonium). The A stands for alkaline.

Wear gloves...

Because of the high content of copper in this wood, you should not use ordinary steel nails and hangers to fasten this wood in place. Copper can cause steel to corrode rather rapidly—especially in wet conditions—and weaken the entire structure. Best to use either hot-dipped galvanized or stainless steel fasteners, bolts, washers, nails, and screws.

...and a mask!

Also, we recommended that you wear gloves when working with this material, given that chemicals on your hands can, and do, enter into your body. And who is to say what kind of health problems a fungicide and an insecticide will cause in the future?

I prefer building ramps when there is at least a slight breeze blowing. This keeps the sawdust on the move. Otherwise, wear a dust mask to keep from breathing any particulates. It's not a good idea to burn this wood, either. Dispose of it properly, not in an ordinary landfill where the chemicals can leach out into the ground water.

Building the Upper Landing

The landing can be 1/2 in. lower than the level of the house floor. If you are using 2x boards (1 1/2 in.) for the decking, drop the ledger board that holds the landing joists down 2 in. below the house floor.

This ledger board needs to be securely attached to the house, because it is a main support for the landing. If possible, I like to bolt or lag this board through the rim joist about every 16 in. using 1/2-in. galvanized carriage bolts. If it's not possible to use bolts, you can support it with posts set on concrete blocks.

Often there is an existing concrete landing, or steps, coming out of the house. You can use this to support the upper wheelchair landing. Besides the ramp, you may need to build an additional set of steps to replace the ones you covered (see photo, right).

The landing is just a basic square or rectangle built level with joists to carry the deck sheathing.

For a 60-in. x 60-in. landing, cut the joists 57 in. long. I like to hang these joists off the ledger and from the rim joist by using metal hangers. With 2x decking, the joists can be located every 32 in. on center, maximum.

I support the front end of this platform with 4x4s. I cut a notch into the post so that the rim joist fits into it.

The post itself sits on a concrete block, and extends up at least 34 in. to carry the handrail. I often let the posts extend a bit long, and then cut them in place.

Ramp Joists

The length of the ramp will determine the length of the joists that will carry the sloped part. If, for example, the height to the entryway is 15 in. you can use 16-ft. 2×6 joists. For our 4-ft. wide ramp, I used three joists attached to the landing by metal hangers or pressure blocks (solid blocking between the joists).

On one ramp I built, I dug the treated joists into the ground to make the bottom landing level with the existing earth.

Mid-span and at the end of the ramp, I notched in additional 4x4s to support the joists and handrail. When the landing happens to be on concrete or asphalt, I cut an angle on the bottom of the joists. This allows them to rest squarely on the landing.

L or U Shaped Ramps

Sometimes, because of space limitations, a ramp has to change directions or double back on itself. To meet ADA guidelines, these "turning" landings must be 60 in. x 60 in. so a turn can be made easily and safely. I support turning landings with 4×4 posts just like the upper landing. Once the landings are in place, joists can be attached to continue the ramp in a new direction.

Sheathing the Decks and Ramp

I buy 16-ft. 2×6 stock and cut it into lengths that will fit the landings and 4-ft. wide ramp. I screw these in place using easy-to-drive and easy-toremove screws. When I'm working in the summer, and the boards are dry (that's rare for Oregon!), I leave about a 1/4-in. gap between the boards to allow room for expansion when they take on winter moisture (see TiC's recent <u>moisture content article</u>). That gap allows rain water, dirt and debris to pass through, too. A carpenter's flat pencil makes a good gauge. If the boards are wet, I leave a smaller gap.

On the last decking board, especially when the ramp ends on concrete, I cut a long bevel. This can be done on a table saw, and allows easy access for a wheelchair. When the ramp ends on earth, the last board can be level with the ground.

Railings

I use 2×6 or 2×8 stock for the bottom curb that keeps a wheel from slipping over the side. This stock is cut to length and held about 3 in. above the deck on both sides. I screw it securely in place to the ramp joists.

I use 2×6 stock for the top rail. The posts are cut to length at 34 in. with a slope on top so rain will drip off and decrease the chance they will rot. I turn the 2×6 rail on edge and let it stick up past the post top at least 2 in. This provides a handhold for anyone walking or pushing a wheelchair on the ramp.

After all the rails are installed, we run a round-over bit on all the upper edges-that's a

quick way to clean up rough boards and eliminate splinters.

When necessary, I split 2x6s with a saw and run them as 2x3s at 18 in. off the deck for a middle rail.

Slip Proof Ramps

If you live in a rainy area, like we do, or in a snowy part of the country, it is advisable to put down a slip-resistant material. I often use good-quality rolled roofing that has a sand finish on. I nail this down with roofing nails. If you have access to outdoor carpeting, this also works well.

Smiles all around

I started helping to frame tract houses in the San Fernando Valley in 1950. Those houses were mainly for WWII vets returning from a bloody war. They wanted to settle down, find a job, and raise a family. Build houses we did—row after endless row of simple, solid, well-built houses. As a young man, I felt good to be involved in the mass realignment of America. But even at the time, I felt uneasy about one aspect of this monumental task.

I was born in 1931, in an isolated rural area in W. Nebraska, where the one constant was the wind howling down from Canada across the plains, chilling me to the bone. This was time of the <u>Great Depression</u>. People were poor. Like the old saying goes: "We used wallpaper not for decoration, but for insulation." We looked at new clothes in the Sears catalog before relegating it to the two-holer not far from the house.

We survived those times because people in the area helped each other. As I said at the start of this article, one of my first memories is going with my mother, carrying food to a hungry family whose mother was bed-ridden with TB. As a boy, I often had the task of shoveling snow and making a path from a neighbor's house to their windmill so they could get water. I was chopping wood for others before I was 8 years old. That's what we did.

A Buddhist teacher I know says, "If you want to be unhappy, think of yourself. If you want to be happy, think of others."

I have had the good fortune to sit at the bedside of people as they were dying. Never once did I hear someone say: "Oh, how I wished I would have spent more time at the office." Dying people have taught me a lot about the meaning of life.

These days, at age 78, I am still doing what my mother and father taught me: to serve others. I find real joy in helping others by building <u>Habitat</u> houses for people who otherwise could never dream of owning their own home, by doing hospice work installing grab bars, and building ramps. The process is always rewarding, but so is the finish.

I always take time at the end of the job to appreciate how grateful a wheelchair-bound person is for the work I've done. Ramps provide freedom to the handicapped, and allow them to fulfill their dreams, to venture out into a world that the rest of us access without a thought.

I don't have to wait for an eternal reward when doing these things. The immediate reward comes from grateful people.

What about you?

Plug-in content

(Photos by Don Blom)

[Editor's note: To learn more from an icon of carpentry, visit Larry's blog, "A Carpenter's View," on Fine Homebuilding's website.]

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AUTOBIO

Why am I here?

Out of the blue it came to me, just like the old ones said it would. Solutions to matters of import are seldom found in mathematical equations. They come straight out of the blue. Not a great matter for you, maybe, but I wanted to know: Why I am here? What's my purpose on this bright planet? Why have I been studying, raising children, building houses, teaching students, and writing books? Surely there is a grand scheme to all this toil.

Those who know me remember that I came off the high, short-grass prairies, where the only constant is the Wyoming wind. There was never a question about whether the wind was blowing or not. Rather, it was about how hard and how cold it blows, coming down across those snow-covered, sagebrush hills. A few old ones still live there, but these days they have warm clothes and warm houses.

I was born in the early '30s, in an uninsulated rural farmhouse without central heating, wool socks, or goose-down comforters. Three feet away from that iron kitchen stove and you were freezing. Whatever the temperature was outside, that was the temperature in our bedrooms, even when mother warmed the sheets with her flat iron. For the eighteen years I lived there, my strongest memory is that I was always cold. Sure, we had those summer days. I would huddle on the lee side of our house and try to warm my deepest parts. The chill never left.

So I headed out the day high school ended without bothering to attend graduation. The old ones said: "Go south." I went south. And south was a dreamland where the sun shone almost every day. Some years we saw morning frost two or three times. Snow was something you could go visit, miles away, if you wanted. I could feel myself thaving, partially.

I started at the university. I became a carpenter, a navy man, a teacher, a husband, a father, a gardener, a writer. But the cold was always there, peering from its home base, waiting for its chance to inhabit me again and again. Even as I sit here writing, I can feel the chill in my feet. Long, lean, and hungry-looking I am, not much natural insulation on these bones, growing older daily. By the time blood is pumped from my heart down through my long body to my toes it has cooled considerably. Take the guard down for a minute and there will be icicles on my nose.

So that's what came to me in the gap. I realized that all my efforts, all my struggles, the reason for my existence, has been to do whatever was necessary to keep myself warm. As an old one, I tell this to you.

Larry Haun (Written on a warm September day in 2009).

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Comments/Discussion

16 Responses to "Ramps for the Handicapped"

1. <u>Bill Cafiero</u> January 14, 2011

Great report by the folks in Oregon. Here in Dallas the Dallas Ramp Project (see our website <u>http://www.dallasramps.org</u>)has built over 2500 ramps since we started in the 1980's. We have it pretty muych down to a science, using prebuilt modules for the underpinings and pressure treated wood and plywood fordecking, footplates and handrails. We are fortunate that we don't have ground freezing here so we just build"floating" ramps on the surface.

Reply

2. Barry Munsell January 14, 2011

Hey Larry, It must be the genes, I spent 20 years or so between Rawlings, Riverton, Saratoga, Laramie and Cheyenne and, having grown up in Nebraska with the heat and humidity, I loved the cool summers and cold winters. The wind, well, you can have the wind where ever.

But the genes, well I'm about your age but a lot more on the short and stubby side with a little more insulation so my heart doesn't have to work as hard I guess. I finally left Wyoming but I'm in Alaska now.

Yes, the wind blows here too. We are just finishing up the 6th day of 50+ gusts to 75, but the big difference here is that at times the wind actually does stop, even for days at a time.

As far as my purpose in life, its to keep my wife warm. As an old one, I tell this to you.

Reply

3. <u>David Collins</u> January 14, 2011 Larry,

God bless you. You are one of the greats.

<u>Reply</u>

4. Jim LaBorde January 15, 2011

Larry,

I have followed your work in Fine Homebuilding as well as some of your books. This was an exceptionally inspiring and educational article. Keep up the great work and best wishes.

Jim

Reply5. Mike KennedyJanuary 15, 2011

Hey Larry,

Nice article! It's -2 and 20 inches of snow here in New England...and yet I feel a little warmer this morning. Thanks. Mike.

<u>Reply</u>

6. *larry haun* January 15, 2011

Bill Cafiero,

Well, Gary has asked for others to consider writing an article. Why don't you contact Gary and ask if he is interested in modular ramp construction. I know I am. Larry Haun

Reply

7. John Campbell Watson January 15, 2011

Hi Larry—

A few years ago, I had to devise and build a wheelchair ramp for my dad's use. Sadly, it was all too temporary.

Many of us can count on being called upon at some time to find solutions to problems of access for a disabled person, young or old.

One doesn't need to be a master carpenter for this kind of work. Almost by definition, most of those in need of wheelchair access will be of limited means. A go-to book(maybe even a downloadable file) of designs, specs and techniques could greatly reduce costs. A guide to ramp solutions for different site conditions would be of great use to many people of all skill levels.

For most of us this work might not high on the money-maker but it's pretty much guaranteed to be high on the feel-good.

By the way, since it's not advisable to burn treated lumber and it's not good for the local landfill and it doesn't easily degrade (that's why we like it) what do you do with the waste?

Thanks,

JW

Reply

8. WillFish January 15, 2011

Done a ton of them over the years. I use very wide aluminum thresholds for the transition to the sidewalk from the ramp. Eliminates the "bump" when using the chair and makes it easier to shovel the snow -I insert the edge of the threshold into a rabbit on the end of the ramp to make the threshold flush with the top of the last board in the ramp to make the transition even smoother.

<u>Reply</u>

9. <u>Skip Brown</u> January 15, 2011

Great work good to see what folks in other parts of the country are doing. I am the Exec. of a non profit christian missions organization we do aprox 55-65 ramps a year on average 30-36' long anlong with 150 other home repair project all done as a demonstration opf the Love of Christ.

We only work for those that have no financial resources. On the ramps we use Ledger Locs due to their shear strength and we can drive them in with cordless scres gun, we prefab 8', 10' & 12' sections and keep them in inventory so we can respond quickly. We use folks many times with little or no experience and have found we erect a 36' long ramp with a landing and a turn around with 5 poeple and be complete in 5 hours unless we have bad weather.

Great work and may the Lord richly bless you

Reply

10. larry haun

January 16, 2011

Dear fellow carpenters,

First, thanks for the good words. I wanted to respond to several items you wrote about.

I think a book on building ramps would be quite helpful. Especially as millions grow older. There are many different designs and problems. I have built ramps 80 ft. long. Others have multiple landings so we could change or reverse direction.

My thoughs of how to dispose of treated lumber: I think we will have to eventually return all scrap to the manufacturer. Maybe they can grind it up and glue it back together for resale.

The aluminum threshold sounds like a good option. We often set a piece of 3/4 in. treated plywood into a rabbet on the last 2×6 board. Thanks all, Larry Haun

<u>Reply</u>

11. Lavrans

January 17, 2011

Hi, Larry. Thanks for the article- it's always good to be reminded of what we can do, and indeed, what we're increasingly needed for in a world that (seemingly) has fewer people who know how to put physical objects together.

I much prefer working without the burden of money hanging over a project. I guess that's one reason why they say there isn't any such thing as altruism- but I like to think that it exists, that we can do things for the benefit of others without our own joy diminishing the gift.

Reply

12. <u>Megan</u>

January 17, 2011

I truly enjoyed your "Ramps for the Handicapped" article. Words cannot express the gift you bring to those you help and inspire. I've just began working for EZ-ACCESS, we manufacture aluminum wheelchair ramps for both portable and permanent solutions for people across the country. You give people your craftsmanship, that is easy to see in a few pictures, but if you think you may find use for prefab solutions I'd love if you took a look at some of our product offerings at http://www.ezaccess.com

We also manufacture access solutions for commercial applications: http://www.commercialramps.com

It takes a special person to give as much as you do, and I wish you the best!

Reply

13. *Kathy K*

August 23, 2011

I am a 55 y.o. mother of 4 grown kids & raising a mentally handicapped little girl. Due to an auto accident I have back injuries and many other health problems, neuropathy in my feet being the most recent. I've had a power chair in my HUD subsidized apt. since 2008, but no ramp for the 4" drop to go outside to work on training a service dog to help with many things. The complex has already met their 5% of ramps (most of which are in the 1 br area, a few in the 2 br area, but only 1 in the 3 br area, which is where I live. It appears that since I have no money to purchase a ramp, I must attempt to build my own. I wondered if any of you wonderful people who do this for people out of the goodness of your hearts may know of anyone in the Jacksonville, FL, area who might be able to help? I have the knowledge to do this, but not the physical ability. Thank you for any info you may have.

<u>Reply</u>

14. Sheila Shipman February 9, 2012

I have a disabled sister who cannot go home from the hospital unless she has a ramp. She is 100% disabled. Her husband is also disabled and a veteren with disabilities as well. How can they apply for help with building accessable entrances into their home for her. She has just had a total knee replacement, her third in 5 years. They are on a small fixed income. Thank you

Sheila Shipman

Reply

15. *Trish Moore* June 17, 2012

I thoroughly enjoyed your story Larry. God bless you for the work you do and your motivation. I had to use a temporary ramp for my mother when she lived with me for 5 years. Sadly, we lost her in April of 2011. We now have an elderly rescued Rottweiler with back injuries. We built her a ramp, temporary of course, off the back deck so she can still enjoy the back yard. We put outdoor carpet on it for traction but she still slides. I found your article while searching for a non-skid covering option for our ramp. I appreciate the tip about roll roofing and am headed to the supply house tomorrow to get some. Thanks again for the info and for all you do for the disabled/elderly.

Reply

16. *Melissa Smith* November 26, 2012

Thank you for your wonderful article. My mom has just become wheelchair bound and I was at a loss on how to build a ramp for her. I have a friend who can do the construction but we couldn't figure out a design. The pictures and descriptions from your article have given us the ideas we need to build a sturdy 30 ft. ramp (1:12 ratio). I live with her to care-give so she won't have to navigate the ramp by herself. You article has given me peace of mind. Thank you!! :)

Reply

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- Michael Kellough: The track saw scoring trick works great! I set scoring depth to 6 mm on Festool TS 55 saw and...
- Dylan Chagnon: The "door horses" as I like to call them are shop made out of 2X material. This way you can...
- Dylan Chagnon: Actually there were a few areas that I would've liked to elaborate on, the hinge being one of them but...
- Dylan Chagnon: Thank you Gary for taking the time helping me put the whole thing together. You made the process much easier....

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