

In the design of this ramp I tried to consider a few key elements. The first key element was the modularity of the ramp. I wanted to make sure that the ramp would be able to be easily implemented on any site for any needs. This included making many of the parts serve double functions as well as being completely flexible and adjustable.

1

The second key element was the ease of the galvanizing process for the parts. Any custom fabricated parts were simplified to make the hot dip galvanizing process easy. Brackets are bent sheet metal that would be easy to galvanize and the modules themselves are made from standard size steel channels and angles.

2

The third key element was the ease of adjustment and assembly. I made sure that this kit of parts could be easily assembled on any site that called for it. There is very little adjustment, if any, that needs to be done to the kit to make it fit virtually anywhere. The weight of the module was very heavily considered in order to make sure that the assembly and transportation of parts would be as seamless as possible. I spent a good amount of time looking into the weight of different steel parts and the size of the module to ensure that the ramp is as light as possible.

3

The fourth key element to consider was cost of production. In the design of this ramp I tried to use as many standard and easy to find parts as possible. That included browsing steel and hardware catalogues and using parts that already exist as galvanized products to reduce the amount that needs to be hot dip galvanized. Standard steel sizes were used in the selection of the angles and channels to make sure they would work and be easy to find in the production of the modules.

4

The fifth key element was something a little less tangible. I strove to give the disabled something back that many of them lost serving this country. **Freedom** and **Safety**. Something that many of us take for granted everyday is the freedom to move freely about our houses and the adjacent area. I used ADA code to make sure that this ramp is not only fully legal per ADA requirements but also fully safe for the users. Giving these heroes access back to their homes and their lives will make a huge difference in this country and hopefully the world.

5

From start to finish I began designing at the modular level. I solved big design problems at the modular level so they would not be a problem at the project scale. These problems included the connection between parts, the double-function of parts and structural pieces, and the engagement of the ramp to different types of ground. From there I moved into weight and size considerations with an emphasis on the details of connection between all the parts. The result, I believe, is a **fully modular** ramp that gives disabled veterans their **freedom** back.

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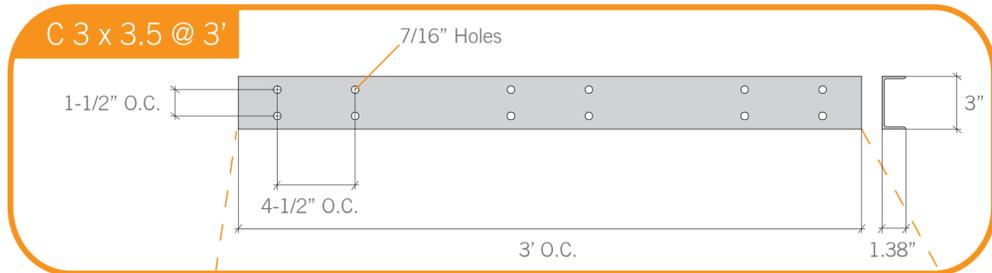


Freedom.

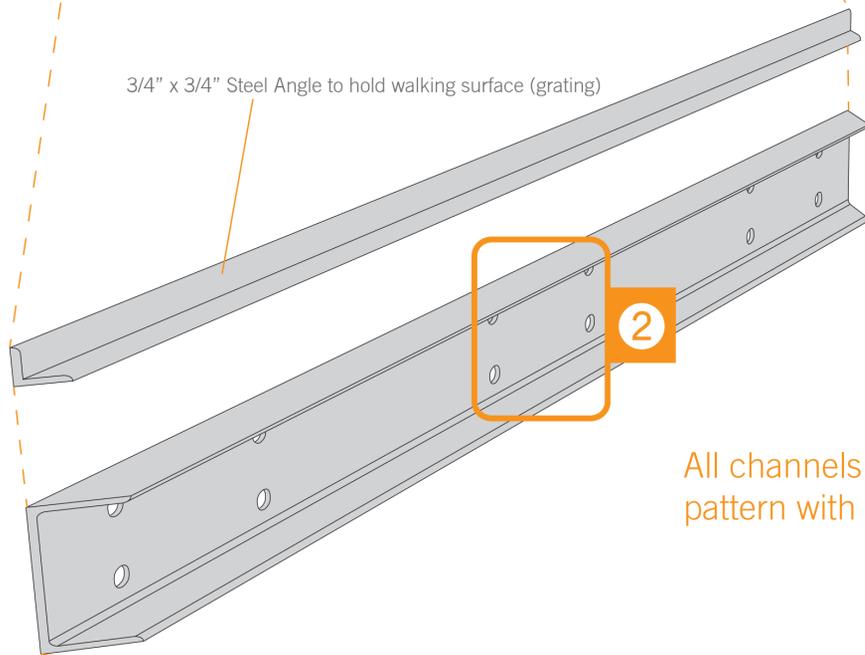
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* ADA building code states there must be a 36" minimum distance between handrails



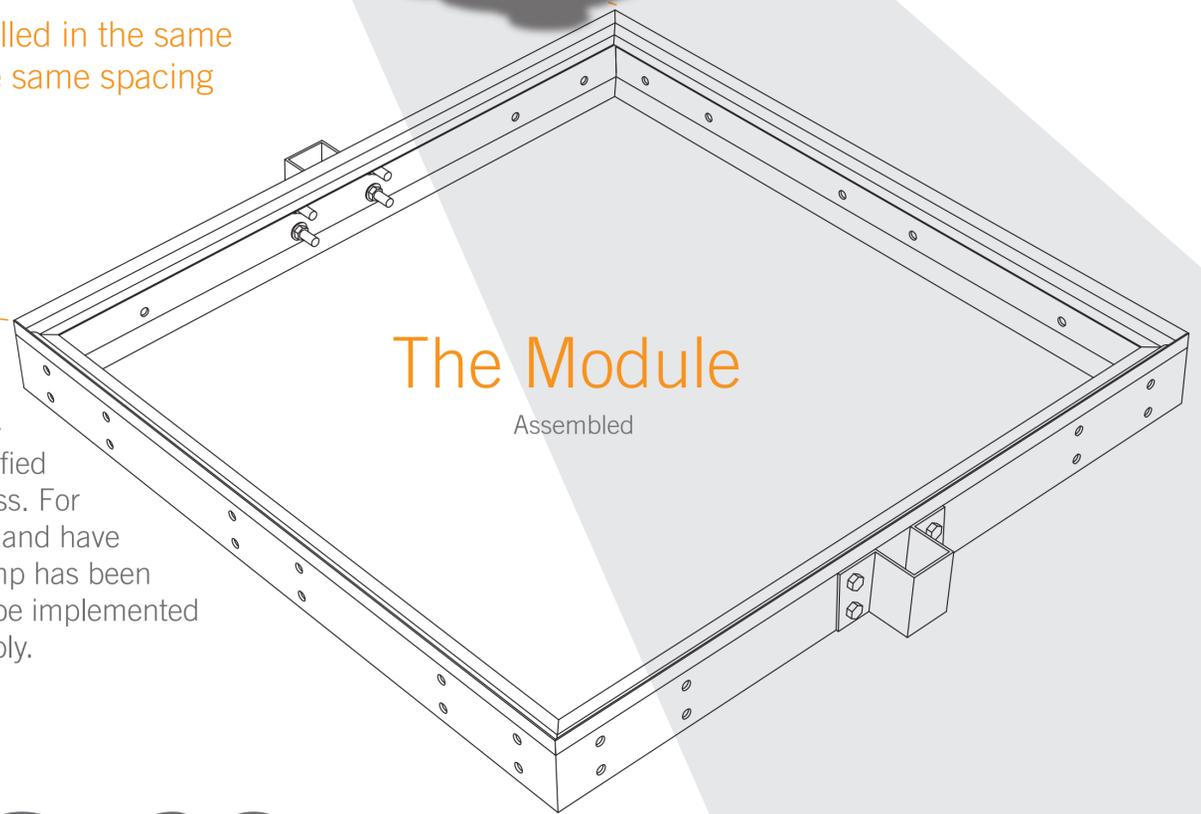
1 Bracket Detail
1" = 2"



3/4" x 3/4" Steel Angle to hold walking surface (grating)

All channels drilled in the same pattern with the same spacing

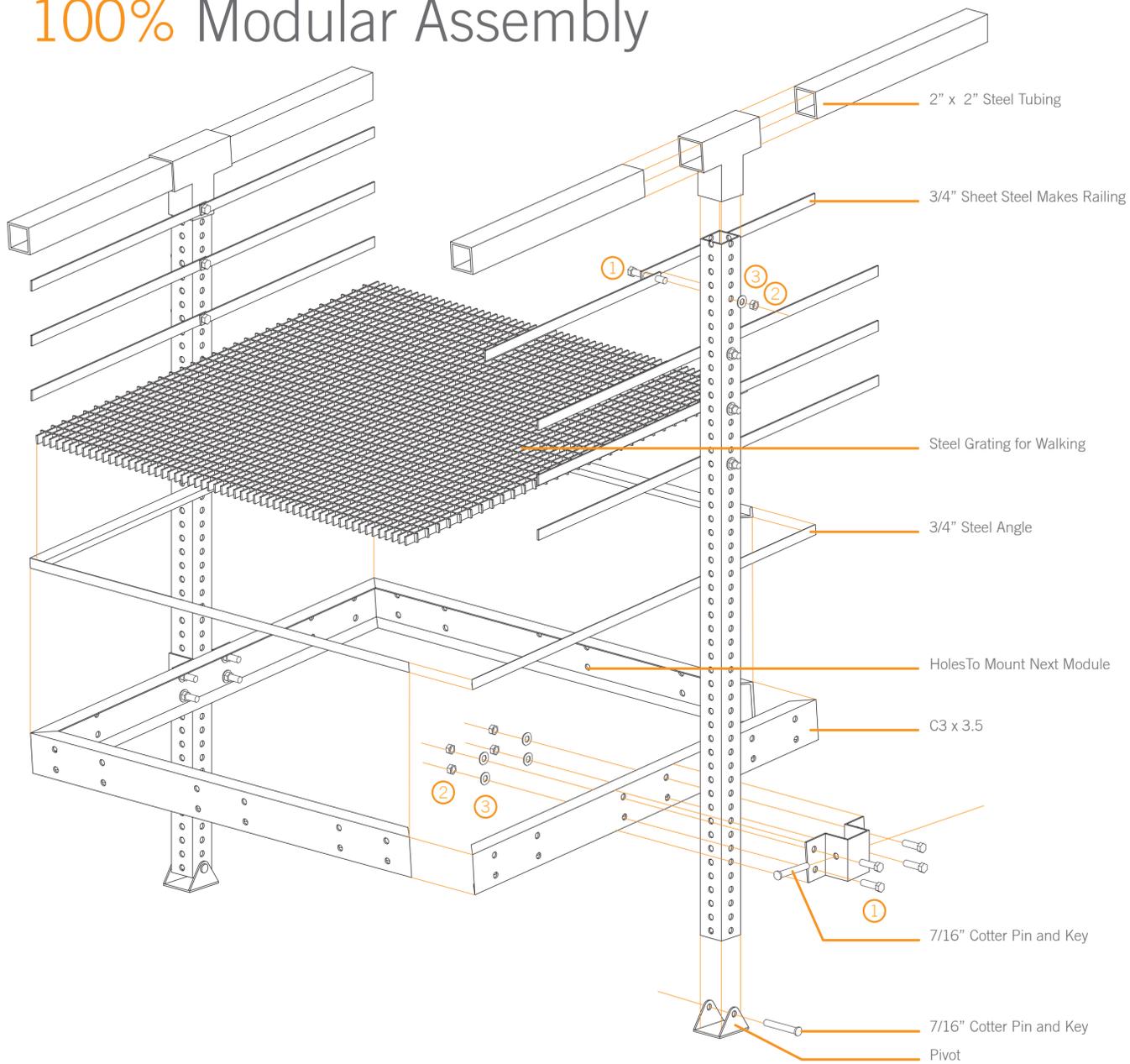
In designing this ramp I tried to consider things like ease of production and cost efficiency in my proposal. Many of the parts that are a part of my proposal are already made and require little to no modification to be implemented. All pieces that need to be custom fabricated have been simplified to ensure cheap production as well as an easy Hot-Dip Galvanizing process. For example, the brackets in Detail 2 - 2 would be pressed from sheet metal and have no hidden spots that would complicate the galvanizing process. The ramp has been simplified down to a 3' x 3' module that is completely flexible and can be implemented in any situation and also easily transported to any work-site for assembly.



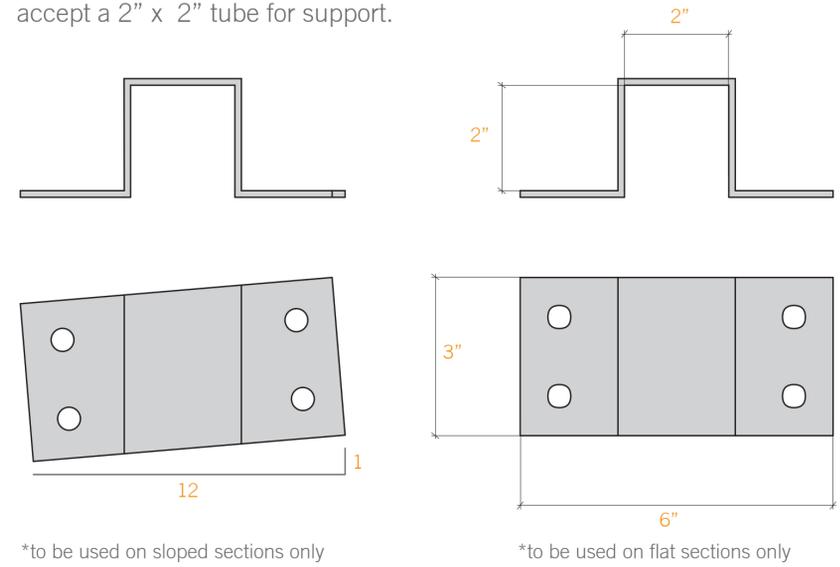
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100% Modular Assembly

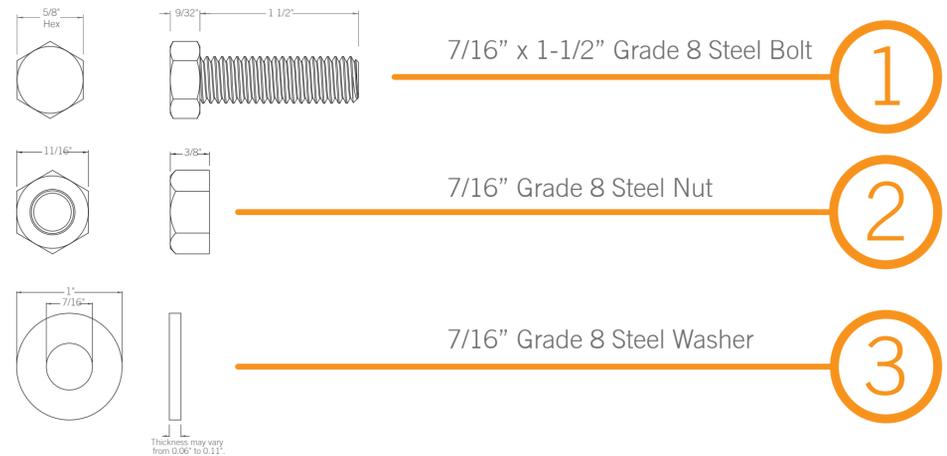


*Brackets are to be fabricated from 1/8" sheet steel and are designed to accept a 2" x 2" tube for support.



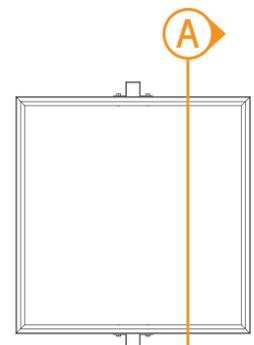
2 Bracket Detail

1" = 2"



Exploded Axonometric of Assembly

1.5" = 1'



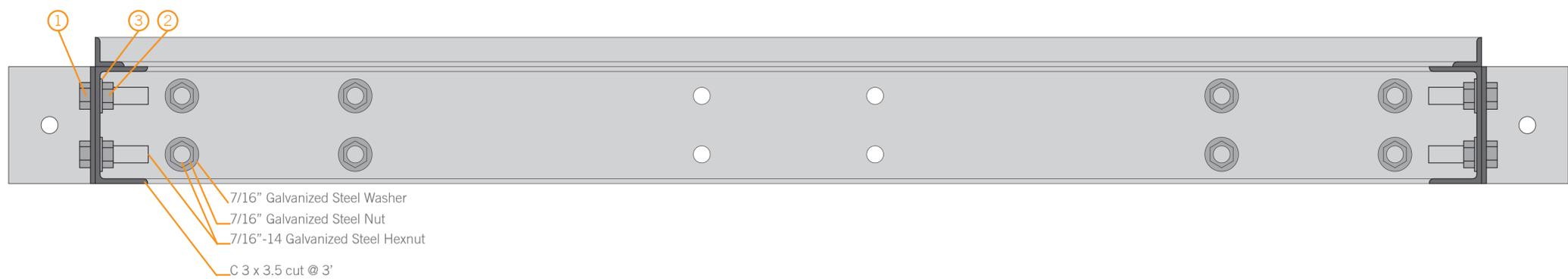
Module Plan

1.5" = 1'



Module Elevation

1.5" = 1'



A A Section

6" = 1'

Hardware

1" = 1/2"

*Hardware used is in standard sizes and can be found in virtually any hardware catalog

In section, you will notice that the ramp, since every channel is drilled in the same exact pattern, has total flexibility regarding assembly. Not only can a support bracket be placed virtually anywhere, but when two units are mounted next to one another, they are bolted together since the holes line up perfectly. This gives the ramp stability in all four directions. The support brackets hold it from left to right and the bolting of modules together holds structural stability in the front to back motion.

1.

2.

3.

4.

5.

6.

7.

1

12

3' Modules mount to one another and allow for ramp to have 1:12 slope per ADA regulations

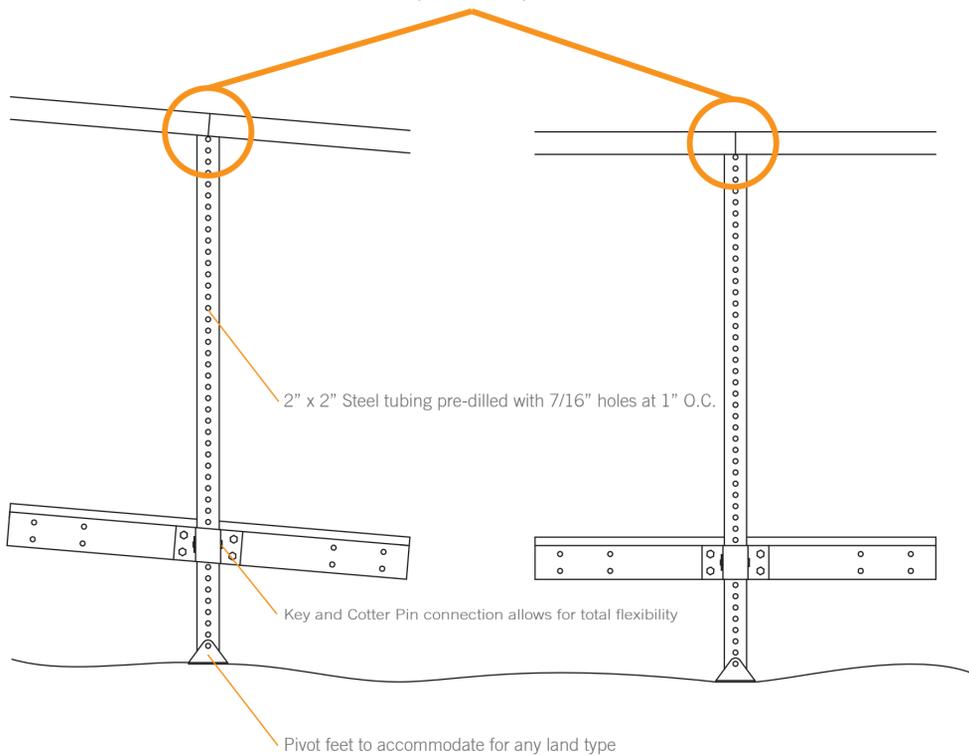
Structurally the ramp is supported in all directions by bolt connections or leg supports



3' O.C.

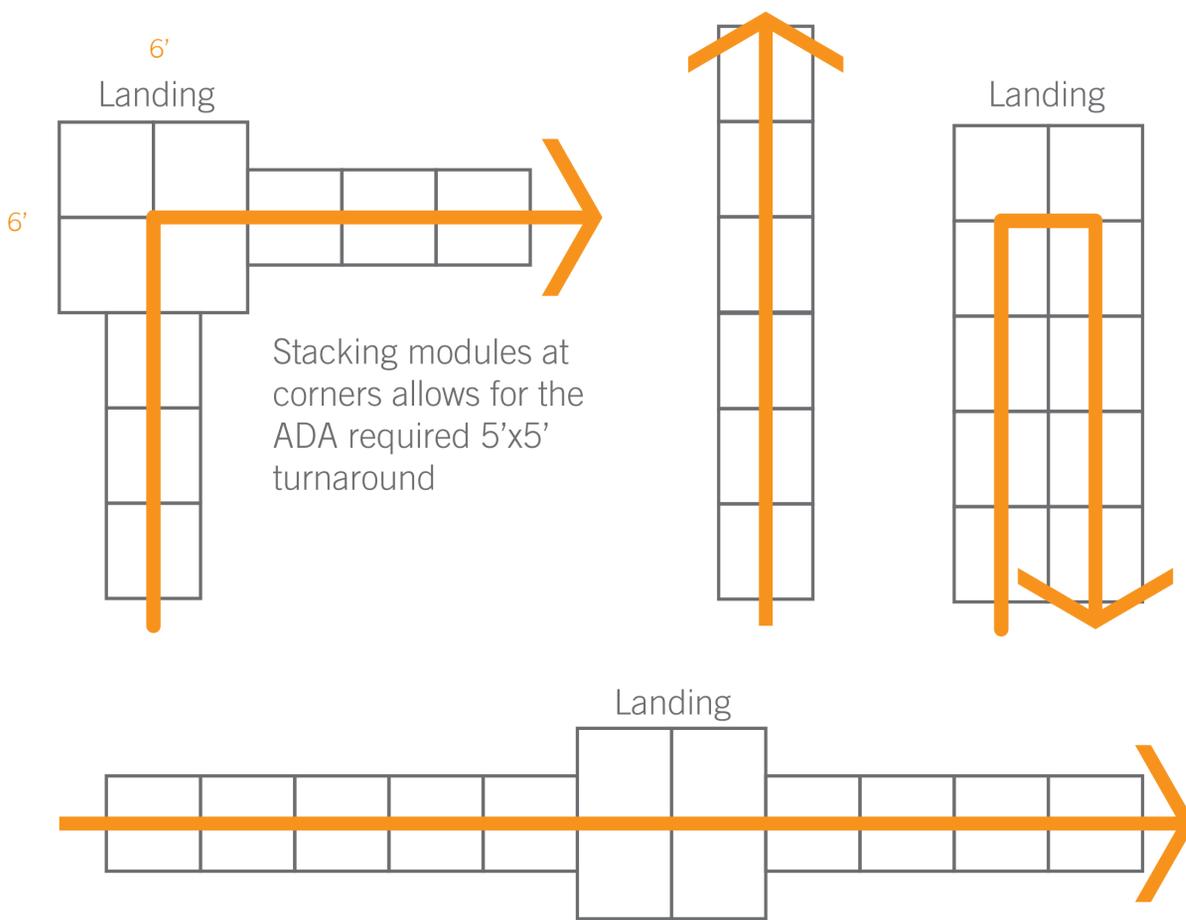
To reduce the amount of material used, the support brackets serve a double function of supporting the ramp and the handrail while also engaging the ground. This gives the ramp a sleek, minimal look and integrates all the supports into one system.

Bracket Connection
(see Axon)



Elevation of Sloped Ramp

Elevation of Flat Ramp



Possible Layouts of Ramp



Freedom.

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Giving FREEDOM back to those who have given so much to US

