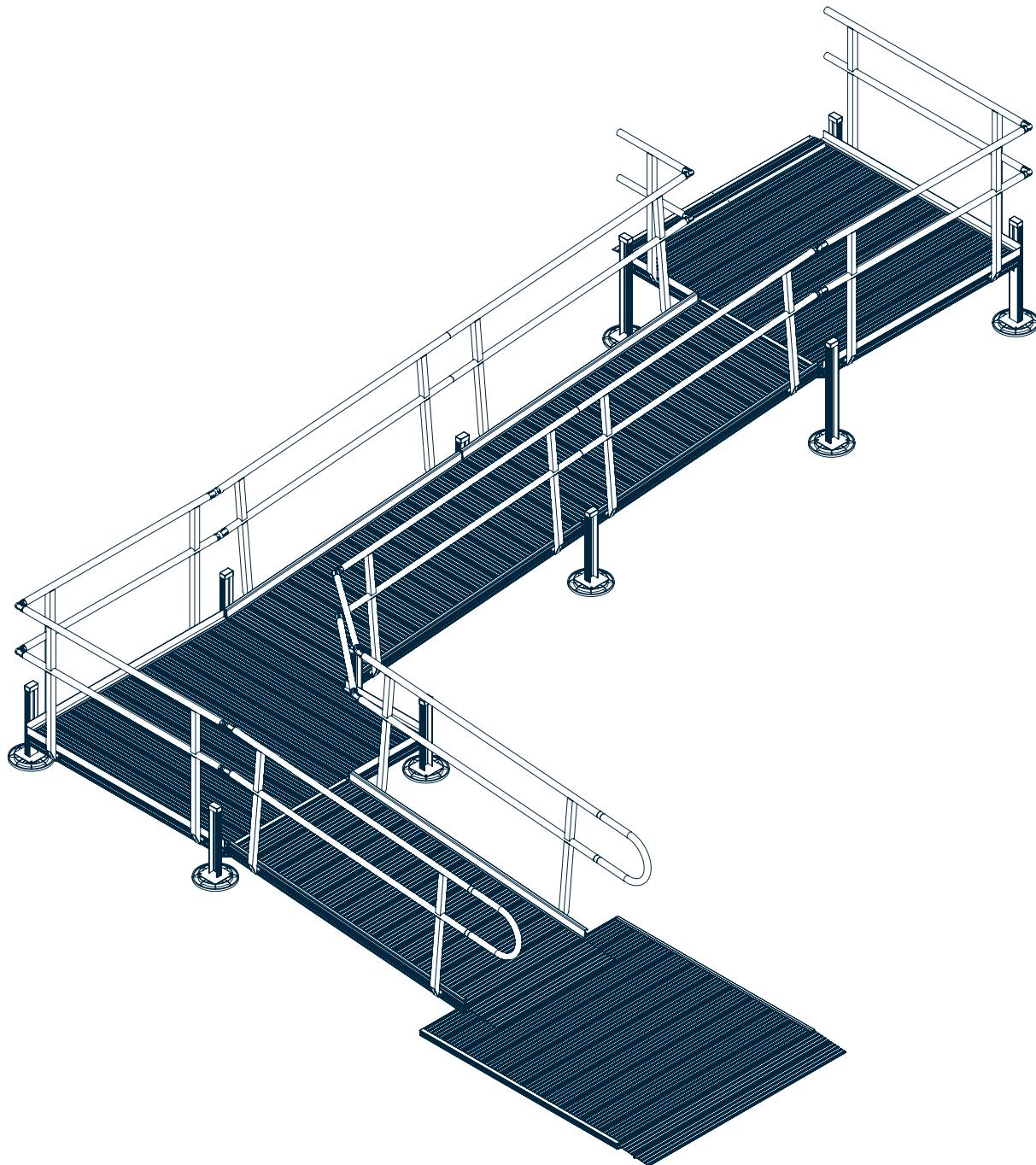




FREEDOM **NOW**

# LIBERTY SERIES™

ALUMINUM SOLID RAMP INSTALLATION MANUAL





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It is specifically noted that the guidelines and instructions set forth in this document are intended for circumstances which fall within the normal parameters for which the equipment is intended. In such circumstances where there are variables which fall outside of usual and customary usage, including but not limited to: excessive weight of the user and/or the user's equipment; topographical conditions which do not lend themselves to support the structure; climate conditions which might have impact upon the efficacy of the structure, etc., it is the obligation of the installer to assess those conditions and to notify National Ramp of concerns in this regard prior to installation. In the event that the installer does not do so, any warranty issued by National Ramp shall be considered to be void and liability for the results of the installer's failure in this regard or any malfunction of the equipment resultant therefrom shall be solely borne by the installer.

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# 1. Welcome

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Thank you for your interest in the Liberty Series™ ramp. This installation manual will review everything you need to know for a successful ramp installation. We have laid out step-by-step instructions as well as start-to-finish guides for your reference.

This manual also overviews everything you need to know about conducting a successful evaluation and the ADA guidelines we recommend your ramp follow.

Our 100% aluminum ramp is engineered and manufactured in the United States and has been designed with your safety in mind.

Whether your ramp will be part of a short-term rehabilitation program or a long-term aging in place plan, the Liberty Series™ will be there for you. It has been engineered to last a lifetime but designed to be removed with minimal impact to your property.

Kind Regards,



**Garth Walker**  
*President/Managing Director, National Ramp*

## 2. Guide to the Liberty Series™ Installation Manual

---

We have designed this manual to be your complete ramp resource, from ramp terminology through maintenance and care. If you are new to ramps, we encourage you to read this manual thoroughly for a complete understanding of the entire process. If you are more familiar with ramps and looking for a refresher, or the how-to of a specific component, please use the Table of Contents to guide you to your answers.

The manual starts with a quick install guide, a top-level look at the Liberty Series™ installation process. Then, a glossary of terms for the ramp process and an overview of the ramp safety guidelines laid out by the Americans with Disabilities Act.

We review the process for conducting a successful evaluation, from determining the best layout for the ramp user, to needed measurements, and completing a configuration.

The next section of the manual is an overview of the Liberty Series™ system.

The installation section has two parts. First, we go through the step-by-step installation of each component to the ramp system, including “extras” your ramp layout may include, such as step systems or cross bracing. Then, we illustrate how to install two common layouts from start-to-finish.

Lastly, we have a guide to the care and maintenance of the Liberty Series™ ramp, plus information on how to register the warranty on your ramp and a special bonus!

### 3. Quick Install Guide

---

If you're experienced in ramp installation or looking for a refresher on installing the Liberty Series™ ramp, this overview is for you.

1. A high-quality evaluation greatly impacts the success of the ramp installation.
2. Double-check your components before leaving for a job site.
3. Confirm measurements at the site to make sure nothing has changed from the evaluation.
4. Lay your ramp sections and platforms where they will be going, with the handrails, legs, and hardware next to them, ensuring all parts are present and in good condition.
5. Always start the installation at the top of the ramp, where it is entered from the house or dwelling.
6. Slide in your universal brackets for the handrails and legs.
7. Get a rough height of each leg for your first platform or ramp section, accounting for a door swing, if applicable.
8. Install the handrails and set the leg heights based on measurements. Leave bolts loose for later adjustments.
9. Lay the platform or ramp section into place.
10. Repeat steps 8-10 for the remainder of the ramp until you get to the last section before the Bottom Transition Plate (BTP).
11. On the last ramp section, slide on the BTP before laying the last ramp section into place.
12. Once all platforms and ramp sections are in place, confirm the pitch is correct and the slope is the same on all runs. If your slope is inconsistent, it will show up when all the handrails are tightened, leading to a sag or drop off.
13. Starting at the top of the ramp and working your way down, connect all handrails and elbows, tightening to stay in place. For some connections, you may need to cut the handrail tubing.
14. Install the Ramp and Platform Brackets, end loops, leg caps, and other miscellaneous items.
15. Lastly, do a final safety check to ensure all hardware is tight, and there are no exposed sharp edges or burrs that could hurt someone.

# 4. Ramp Terminology

---

**Below is a list of commonly used terms that are helpful to understand for the ramp process.**

**MODULAR RAMP** ▶ a ramp composed of smaller sections and platforms that are assembled on site, with handrails and toe guards.

**RAMP SECTION** ▶ a sloped piece of ramping.

**RAMP PLATFORM** ▶ a level section for turns, resting, or entering a ramp.

- **TURN PLATFORM** ▶ a platform used to change direction, generally at 45° or 90°.
- **REST PLATFORM** ▶ a 5' level area that allows a self-ambulatory individual to rest. ADA guidelines require a rest platform for every ramp run longer than 30'.
- **SWITCHBACK OR TURNBACK PLATFORM** ▶ a combination of platforms used to change the ramp direction by 180°.

**START OF THE RAMP** ▶ the entrance of the ramp from the dwelling.

**END OF THE RAMP** ▶ where the ramp is exited onto a hard level surface such as a sidewalk or driveway.

**RISE OF THE RAMP** ▶ the elevation of the ramp as measured from the bottom of the door to where the ramp will end.

**LENGTH OF THE RAMP** ▶ the distance between the start and end of the ramp.

**SLOPE** ▶ angle of the ramp.

**RAMP RUN** ▶ the horizontal length of ramping. This term can refer to the overall ramp length, or a section of the layout comprised of one or more continuous ramp sections.

**GRADE** ▶ topography of the ground.

**GRADE VARIATION** ▶ the amount that a property changes in elevation across the length or width of the ramp.

- **UPGRADE** ▶ an upward slope of the ground, from the ramp's start to its end. If the measured height at the ramp's ending is less than the measured height at the start, that property has an upgrade.

- **DOWNGRADE** ▶ a downward slope of the ground, from the ramp's start to its end. If the measured height at the ramp's ending is greater than the measured height at the start, that property has a downgrade.
- **CROSS SLOPE** ▶ a change in slope that runs across the width of the ramp rather than the length. Where there is a cross slope, the legs on each side of the ramp will be at different heights to make sure the ramp is level across its width.

**LANDING PAD** ▶ a 5'x5' level surface used at the end of the ramp if a hard level surface does not exist at the site.

**LEGS** ▶ supports for the ramp sections or platforms.

**DUAL-LINE HANDRAIL** ▶ handrail design featuring two handrails, one located on the top, and one in the middle, that are parallel with the ramp's travel surface.

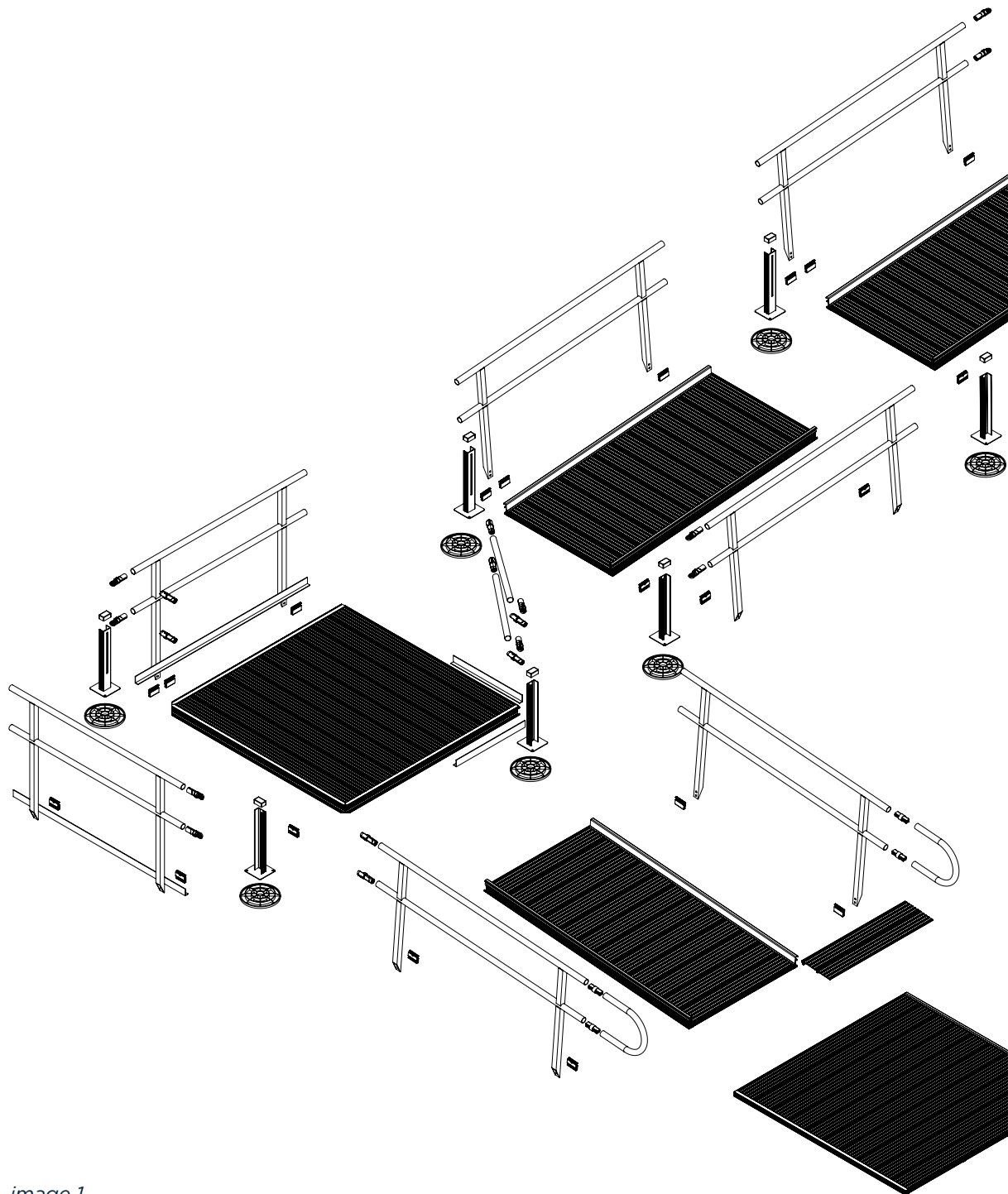
**VERTICAL PICKETS** ▶ railing design with vertical pickets affixed to the ramp instead of a dual-line handrail. Some municipalities require picket handrails for all or part of the ramp system, depending on height, and some consumers choose them for added security, especially when the ramp will be used by children or animals.

**THRESHOLD RAMP** ▶ a ramp without handrails, used to provide a smooth transition over short elevations, including door thresholds or steps.

## 5. Ramp System Components

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Liberty System™ layout in exploded and assembled views are below.  
A list of all components, with brief descriptions of each item's use, begins on page 14.



*image 1*

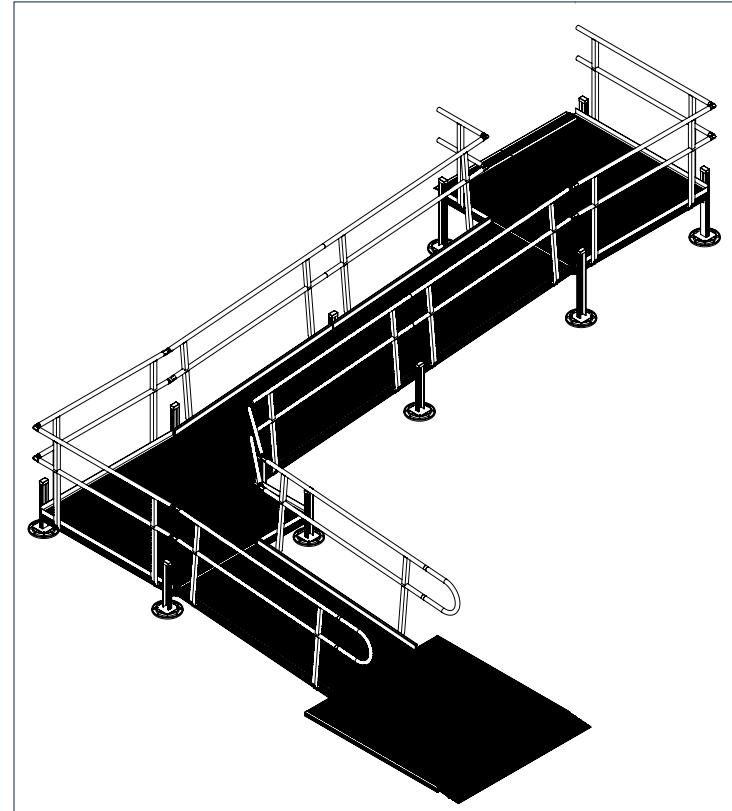
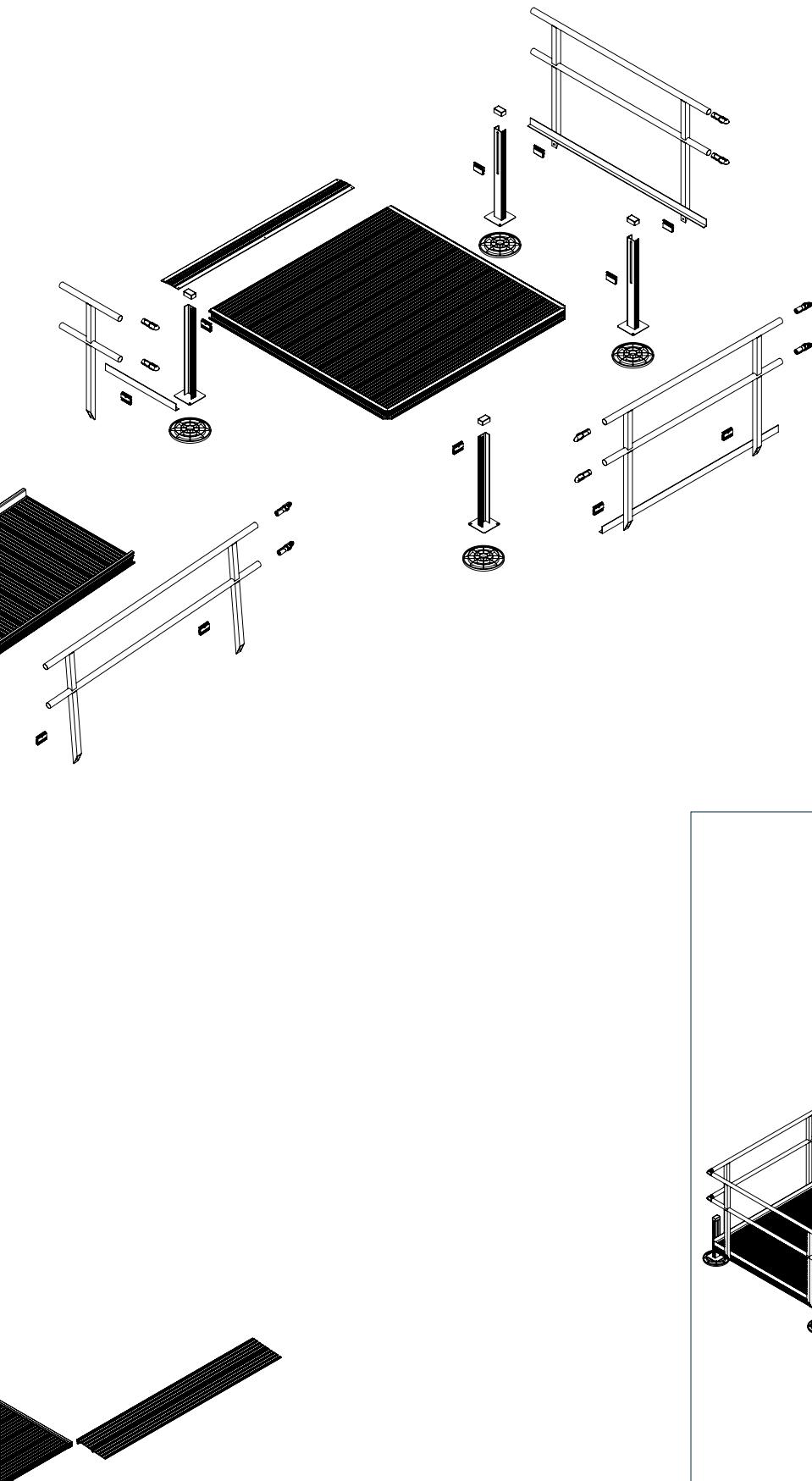
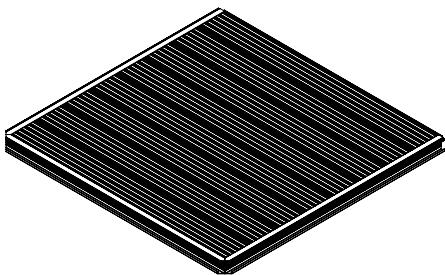


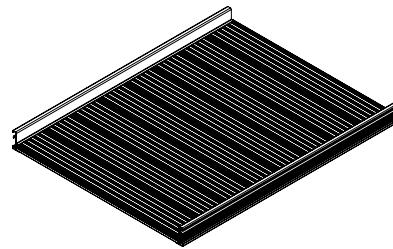
image 2



36" wide

#### PLATFORM

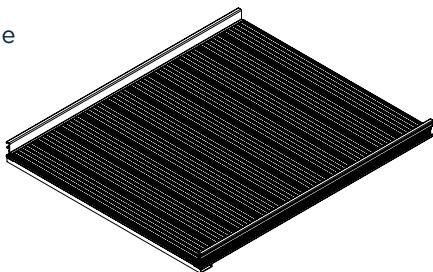
Platforms offer a variety of uses as a level surface on your ramp system. They can create a solid surface at the start of the ramp, change the direction of the ramp, navigate the ramp around a large obstacle, or provide a level rest area.



#### RAMP SECTION

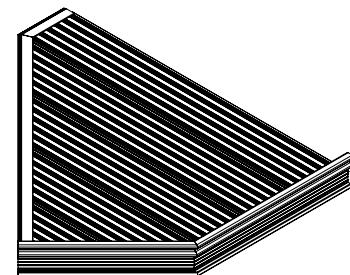
The standard Liberty Series™ ramp section is 36" wide. Liberty Series™ ramp sections can be installed level or sloped.

48" wide



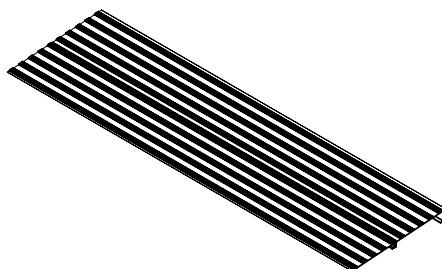
#### BARIATRIC RAMP SECTION

Liberty Series™ ramping is available in a 48" wide, bariatric version, which has the same functionality as the standard 36" wide ramping. Customers choose bariatric ramping for mobility devices that are too wide to fit on the standard ramping.



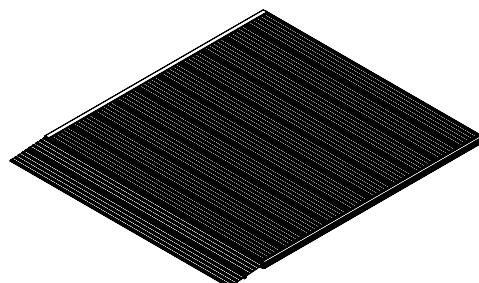
#### PIE PLATFORM

A platform to turn the ramp's direction by 45°. Pie platforms are named (left or right) for the direction the ramp turns as you travel down the ramp from the ramp start. *Pictured is a right pie platform.*



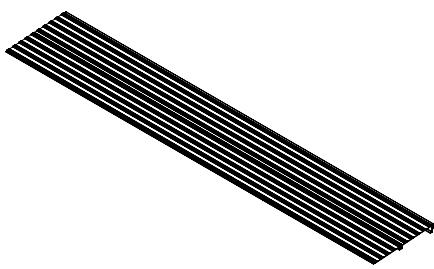
#### RAMP BOTTOM TRANSITION PLATE (BTP)

The bottom transition plate is the landing area of the ramp, allowing a smooth transition on and off the ramp's end. On a 36" wide ramp, the BTP is the last foot of ramping, on a 48" wide bariatric ramp, the BTP is two feet long.



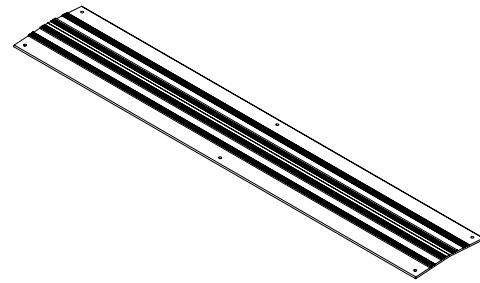
#### LANDING PAD

A solid aluminum 5'x5' platform placed directly onto the ground to provide a solid, level landing surface when the ramp would otherwise end on soft ground.



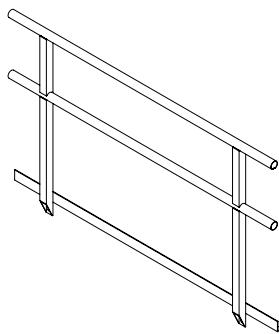
#### LANDING PAD BOTTOM TRANSITION PLATE (BTP)

60" long bottom transition plate is the landing area for the landing pad, placed facing the exit direction of the ramp.



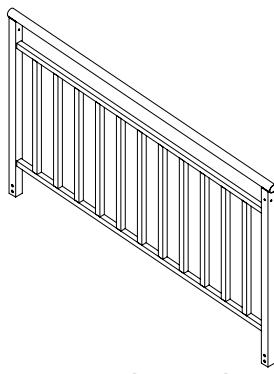
#### TOP TRANSITION PLATE (TTP)

The TTP attaches the ramp system to the home at the ramp start and provides a smooth transition onto the ramp system.



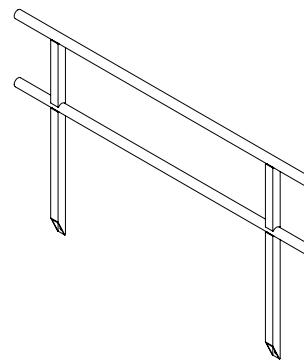
#### PLATFORM DUAL-LINE HANDRAIL

Handrails with two railings that run parallel to the ramp surface. The platform dual-line handrail contains a toe guard along the bottom. Due to the toe guard, the platform handrails attach to the platform before the legs.



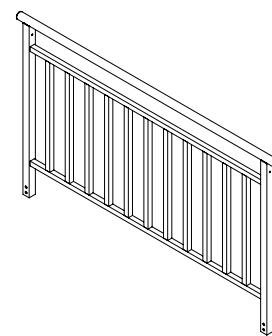
#### PLATFORM VERTICAL PICKET HANDRAIL

Handrail design with vertical pickets within 4" apart, that is used instead of a dual-line handrail. The picket railings on a platform handrail are straight.



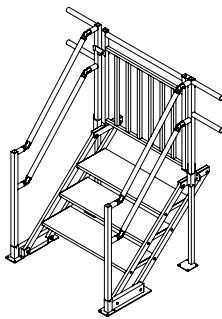
#### RAMP DUAL-LINE HANDRAIL

Handrails with two railings that run parallel to the ramp surface. The ramp dual-line handrail does not contain a toe guard.



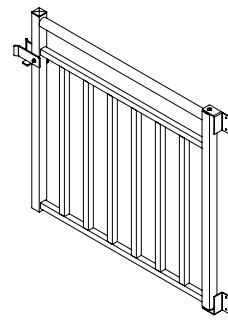
#### RAMP VERTICAL PICKET HANDRAIL

Ramp handrail with vertical pickets 4" apart that is used instead of a dual-line handrail. The picket railings on a ramp handrail are angled, so they will be straight when installed on a ramp with a 4.8° slope.



**STEP SYSTEM**

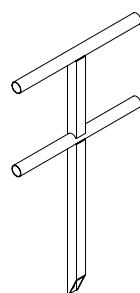
Made to connect with the Liberty Series™, the step system can provide an alternate exit off the ramp for porch access or to bypass needing to walk the entire length of the ramp.



**GATE**

Made to connect with the Liberty Series™, the gate prevents a wheelchair from rolling onto the step system, or for other applications where you may want to secure access.

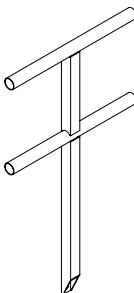
37" High



**PLATFORM T-POST**

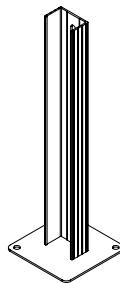
Used to provide handrails on turn platforms at the start of a ramp, or for the inside of a 5'x5' turn platform.

35.5" High



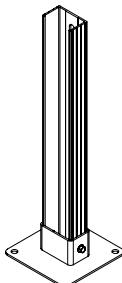
**PIE PLATFORM T-POST**

Used in all pie platform installations to create the outside corner handrails.



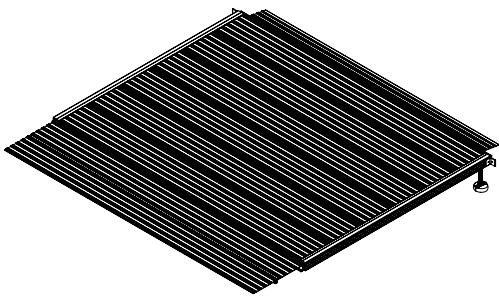
**STANDARD LEGS**

These legs are installed on all platform and ramp sections with dual-line handrails.



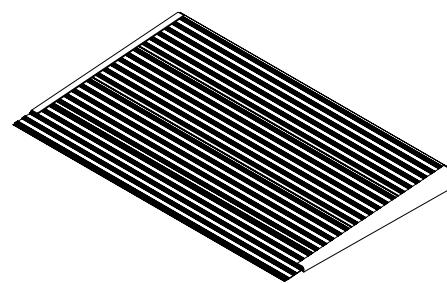
**LEGS FOR VERTICAL PICKETS**

These legs are installed on all platform and ramp sections with vertical picket railings. They are composed of two pieces, the leg channel and a footplate so that the leg height can be customized to fit with the handrails.



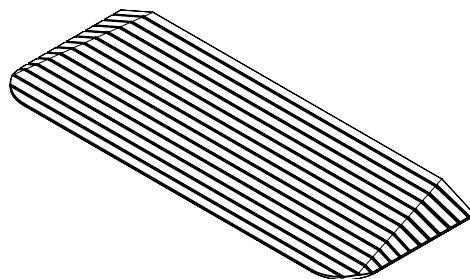
### ADJUSTABLE ALUMINUM THRESHOLD RAMP

Available in two sizes (up to 3" and up to 6"), these threshold ramps offer a customizable fit to create a smooth transition over door thresholds and small steps.



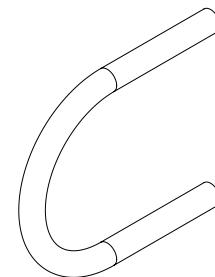
### FIXED ALUMINUM THRESHOLD RAMP

Available in fixed heights of  $\frac{1}{2}$ ", 1",  $1\frac{1}{2}$ " and 2", these threshold ramps are used to create a smooth transition over door thresholds and small steps.



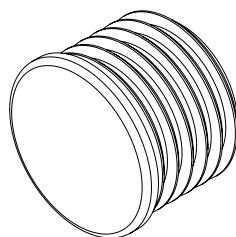
### RUBBER THRESHOLD RAMP

Available in heights of  $\frac{1}{2}$ ", 1",  $1\frac{1}{2}$ " and 2", these 100% rubber ramps may be cut to offer a customizable fit to create a smooth transition over door thresholds and small steps.



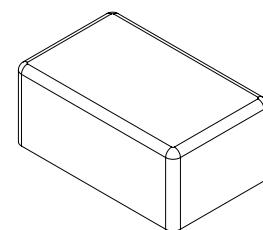
### END LOOPS

Used to help ramp users in manual chairs pull themselves onto the ramp. They're installed at the end of the ramp, and sometimes when the ramp starts off a porch. The end loops can also create continuous handrails when you don't want to cut the handrails.



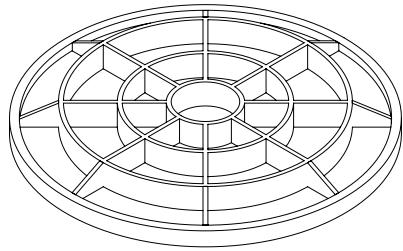
### END CAPS

Caps placed in the open ends of railings for a handrail or TTP at the top of a ramp starting at the door, or instead of end loops if requested.



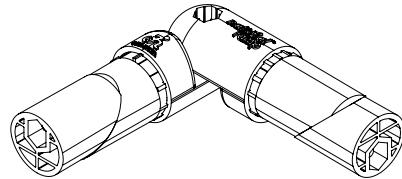
### LEG CAPS

Placed on top of each leg to prevent anyone from cutting themselves on the leg.



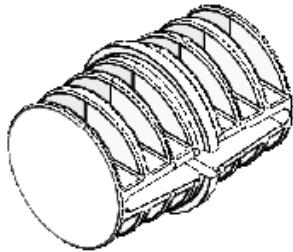
### CELEBRATION FOOTER PAD

Supports placed underneath legs to prevent them from sinking into soft ground.



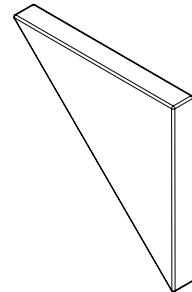
### ELBOW CONNECTOR

This adjustable elbow connects joints that aren't straight or inline. They connect platform and ramp railings and create 90° corners.



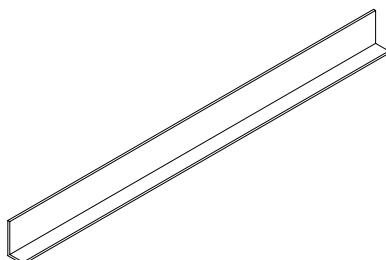
### PLASTIC RAIL CONNECTOR

A connector used between ramp section railings that are straight or inline.



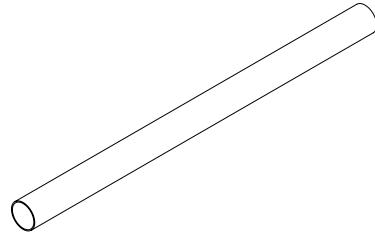
### PLATFORM TOE GUARD CORNER COVER

Used to cover corners on platform toe guards.



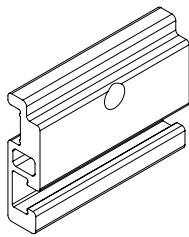
### TOE GUARD

A piece used to create a continuous toe guard on platforms where needed.



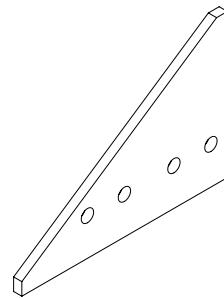
### FILLER PIPE

A piece used to fill in handrails on 5'x5' turn platforms, or in switchback platforms.



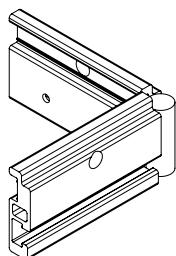
### 3" UNIVERSAL BRACKET

Placed in the channels of platforms and ramps to connect all legs, T-Posts, and dual-line handrails. Vertical pickets use a 2.5" universal bracket (see page 20).



### RAMP AND PLATFORM BRACKET

Placed in the channels of platforms and ramps to secure the connections between the sections.



### SWITCHBACK BRACKET

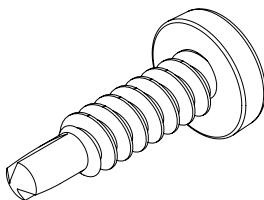
This piece creates a mounting point on a tongue side of a platform.

The most common applications are to attach a leg to the inside of a switchback platform or for the interior corner of a vertical picket railing.



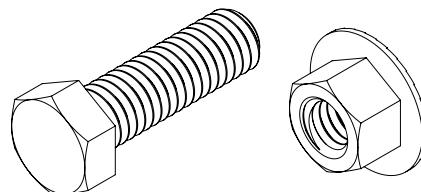
### HURRICANE TIE-DOWN

Provides additional ramp anchoring in areas subject to high-wind weather.



### #10 X 3/4" PHILLIPS PAN DRILLER (called "driller screw" within this manual)

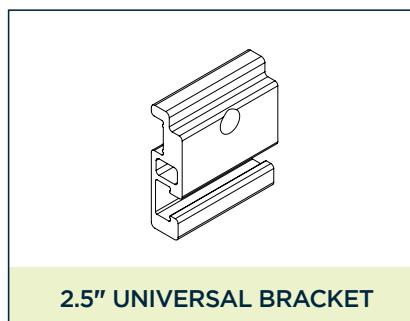
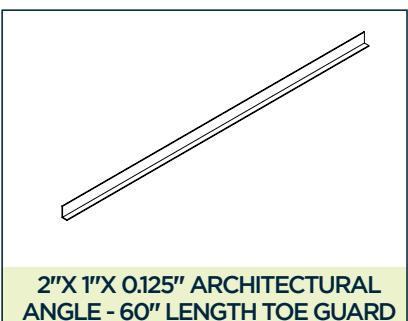
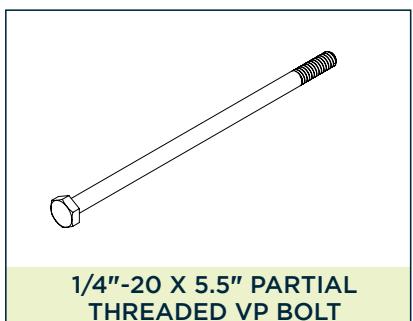
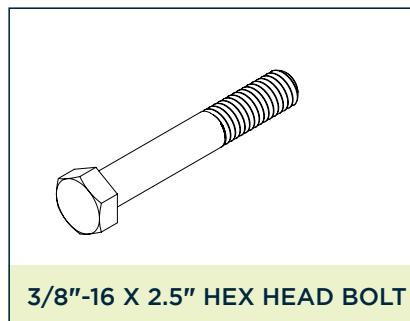
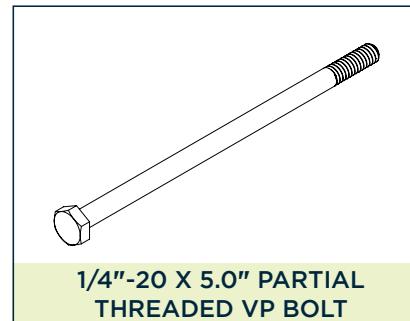
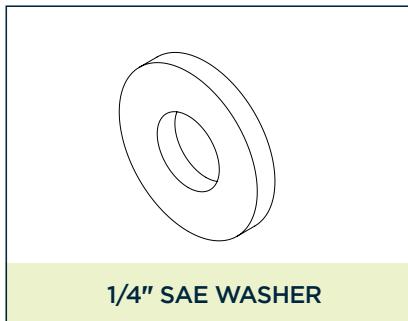
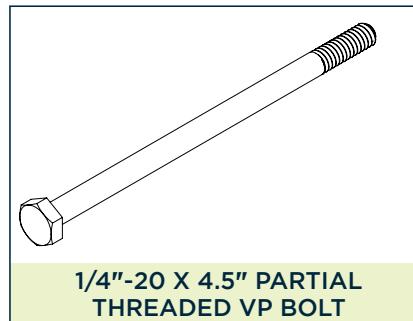
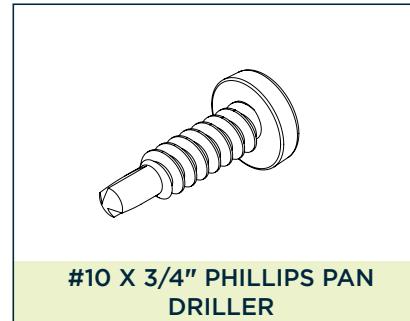
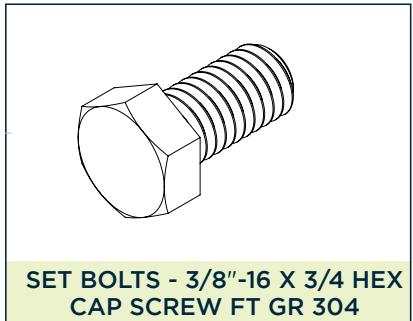
Used to fasten the TTP into place, the legs into the universal bracket, toe guards to the platform, and the Ramp and Platform Bracket into place.

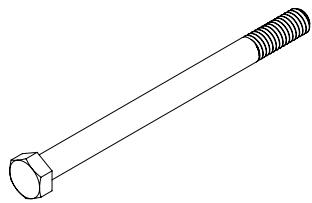


### 3/8"-16 X 1 1/4" HEX HEAD BOLT AND 3/8"-16 SERRATED FLANGE NUT

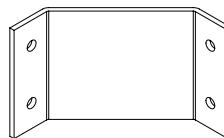
Used to secure legs and handrails to the universal bracket.

## 6. Hardware Kit Components

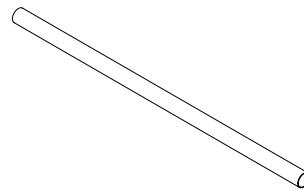




**3/8"-16 X 5" ZINC PLATED HEX HEAD BOLT**



**PICKET CORNER SUPPORT BRACKET - ANGLE SUPPORT**



**36" HANDRAIL FILLER PIPE (1.5" OD)**

#### 2071-01 - LIBERTY RAMP SECTION HARDWARE KIT

Part Number	Description	QTY
<b>2401</b>	Liberty Ramp Section Hardware Bag (per section)	<b>1</b>
<b>2405</b>	3" Universal Bracket (per each)	<b>7</b>
<b>2409</b>	Liberty/Breeze Ramp/Platform Bracket	<b>2</b>
<b>2461</b>	Plastic Rail Connector - each	<b>4</b>
<b>2464</b>	Liberty Leg Protective Caps (per each)	<b>2</b>
<b>8781</b>	#10 x 3/4 Phillips Pan Driller	<b>6</b>

#### 2172-01 - LIBERTY PLATFORM HARDWARE KIT

Part Number	Description	QTY
<b>2402</b>	Liberty Platform Hardware Bag (per platform)	<b>1</b>
<b>2405</b>	3" Universal Bracket (per each)	<b>9</b>
<b>2409</b>	Liberty/Breeze Ramp/Platform Bracket	<b>2</b>
<b>2411</b>	2' Liberty Toe Guard - per each	<b>2</b>
<b>2464</b>	Liberty Leg Protective Caps (per each)	<b>4</b>
<b>2465</b>	Platform Toe Guard Corner Cover (per each)	<b>8</b>
<b>2470-01</b>	New Plastic Elbow Connector (ea)	<b>6</b>
<b>8581</b>	36" Handrail Filler Pipe (1.5"OD) - per each	<b>2</b>
<b>8781</b>	#10 x 3/4" Phillips Pan Driller	<b>6</b>

## 2600 - STAIRS HARDWARE KIT

Part Number	Description	QTY
2405	3" Universal Bracket (per each)	2
2470-01	New Plastic Elbow Connector (ea)	12
8618	1.5 Black Square Caps	4
8625	1/4"-14 x 1" Drilling Screw	6
8626	3/8"-16 ***Large Flange*** Serrated Flange Nut	4
8627	3/8"-16 x 1-1/4" Hex Head Bolt	4
8789	Set Bolts - 3/8-16 x 3/4 Hex Cap Screw FT Gr 304	4
8824	1/4" SAE Washer	8
8825	1/4"-20 Acorn Nut (1/4" thread)	4
8828-2	1/4-20 x 2" Hex Head Partially Threaded Bolt	4

## 2071-P - LIBERTY VERTICAL PICKET RAMP SECTION HARDWARE KIT

Part Number	Description	QTY
2405	3" Universal Bracket (per each)	2
2408	2" Universal Bracket (per each)	4
2463	Round Black End Caps for Handrails (per each)	4
2464	Liberty Leg Protective Caps (per each)	2
2403-P-02	1/4"-20x4.5" Partial Threaded VP Bolt	2
8625	1/4"-14 x 1" Drilling Screw	4
8626	3/8"-16 ***Large Flange*** Serrated Flange Nut	12
8627	3/8"-16 x 1-1/4" Hex Head Bolt	4
8821	3/8"-16 x 2.5" Hex Head Bolt	8
8823	1/4"-20 Nut	2
8824	1/4" SAE Washer	4
8825	1/4"-20 Acorn Nut (1/4" thread)	2

## 2071-P - LIBERTY VERTICAL PICKET PLATFORM HARDWARE KIT

Part Number	Description	QTY
2227-P-CSB	Picket Corner Support Bracket - Angle Support	8
2403-P-01	1/4"-20x5.0" Partial Threaded VP Bolt	2
2403-P-03	1/4"-20x5.5" Partial Threaded VP Bolt	1
2405	3" Universal Bracket (per each)	4
2408	2" Universal Bracket (per each)	6
2411	2' Liberty Toe Guard - per each	2
2413	Liberty Switchback Bracket - per each	1
2463	Round Black End Caps for Handrails (per each)	8
2464	Liberty Leg Protective Caps (per each)	4
2465	Platform Toe Guard Corner Cover (per each)	8
8598	2"x1"x 0.125" Architectural Angle - 60" Length	2
8625	1/4"-14 x 1" Drilling Screw	34
8626	3/8"-16 Zinc Plated ***Large Flange*** Serrated Flange Nut	26
8627	3/8"-16 x 1-1/4" Hex Head Bolt	8
8628	#8 X 3/4" Phil Pan Driller Screw	4
8821	3/8"-16 x 2.5" Hex Head Bolt	14
8822	3/8"-16 x 5" Hex Head Bolt	2
8823	1/4"-20 Nut	3
8824	1/4" SAE Washer	6
8825	1/4"-20 Acorn Nut (1/4" thread)	3

DISCLAIMER: Parts and hardware are subject to change without notice. Please contact National Ramp for any questions.

# 7. ADA Guidelines and Local Codes

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The Americans with Disabilities Act (ADA) is a civil rights law that prohibits discrimination based on disability. Signed into law in 1990 by President George H.W. Bush, it sets standards for access to public spaces and buildings, among many other protections. Within the ADA are guidelines for safe ramps.

These guidelines are required for commercial and public properties. While not mandatory for residential properties, each requirement serves a useful function, and National Ramp encourages adherence to the below guideline summaries as much as feasibly possible.



At the door, there must be a flat surface at least 5' long, with a width at least as wide as the ramp if the ramp extends straight out. When a turn at the door is required, the flat surface must be at least 5'x5'.

- This guideline ensures users and caretakers a safe, level surface to open/shut their doors and turn around before continuing onto the ramp.
- This level surface can be a porch/deck, and sometimes only a small threshold ramp is needed to help navigate through the doorway.



Ramps should have a 1:12 pitch, so, for every inch of elevation, there are 12 inches of ramping, resulting in a 4.8° slope.

- This guideline is to ensure the slope of the ramp is not too steep for safe passage.
- National Ramp recommends no greater than a 1:8 pitch/6.4° slope, and only for users in a power wheelchair or manual wheelchair being pushed up the ramp by a caretaker. Refer to the mobility device's Owner Guide to confirm its maximum allowable slope.



Resting platforms of 4'x5' or 5'x5' are needed for every ramp run longer than 30'.

- This platform gives the user/caretaker a resting place in case they become weary when traveling the ramp.



Ramps should end on a hard, level surface.

- ADA guidelines for a landing are five feet long, with a width at least as wide as the ramp for straight landings, and 5'x5' minimum for a landing that changes direction. This guideline is so the mobility device does not become stuck in muddy or soft ground.

Concrete and pavement are acceptable landing surfaces for ramps. Hard-packed gravel can be an acceptable landing surface depending on the individual's mobility device and their ability to maneuver in that gravel. Grass and dirt aren't recommended for a landing surface where it can be avoided. Landing pads are available by National Ramp to provide a safe landing surface where needed.



Ramps should be a minimum width of 36" for residential properties, and 48" for commercial or bariatric use.

It is the responsibility of the installer or homeowner to check for local codes. While ADA requirements do not govern residential properties, there may be local codes that your modular ramp must follow.

Please reference [homeaccess.nationalramp.com/ada-guidelines](http://homeaccess.nationalramp.com/ada-guidelines) for more information on ADA guidelines.



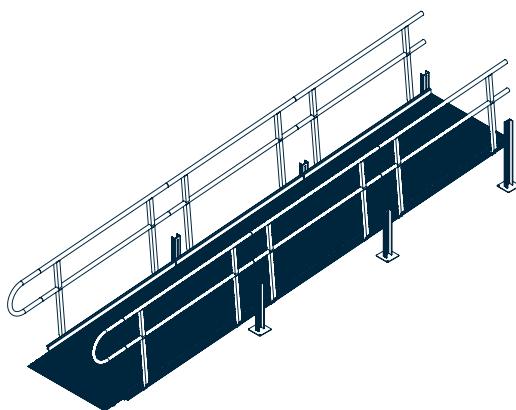
# EVALUATION OVERVIEW



## 8. Common Ramp Configurations

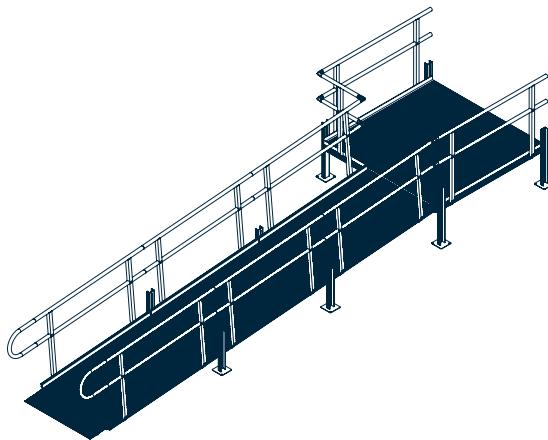
The below is not an exhaustive list of all layout configurations, and your ramp layout may even combine different turns to fit all the needed ramping.

To determine if a ramp layout is turning left or right, describe it as if you were traveling down the ramp from the home entrance.



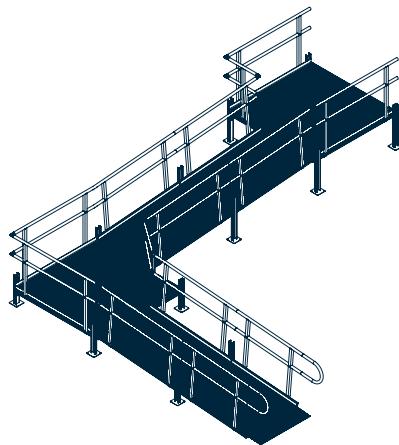
**STRAIGHT RAMP WITHOUT STARTING PLATFORM**

This layout is appropriate for a ramp that is less than 30' long, which starts from a porch larger than 5'x5'.



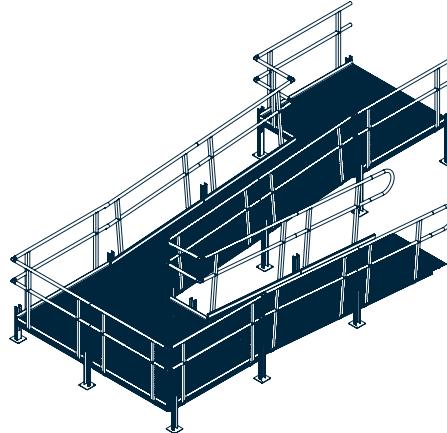
**STRAIGHT RAMP WITH STARTING 5'X5' PLATFORM**

This layout is appropriate for a ramp that is less than 30' long, that starts at a door or small porch.



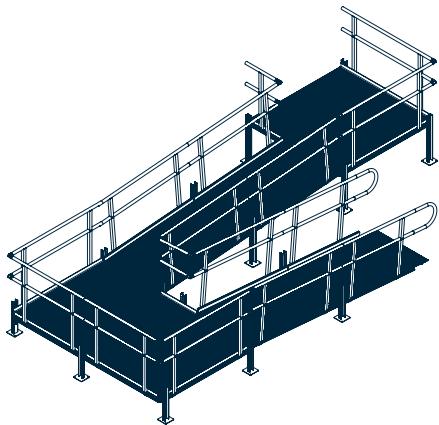
**RAMP WITH A 90° TURN**

This layout turns the ramp's direction by 90°. While a left turn is pictured, the same 5'x5' platform can make a right turn, or function as a rest platform.

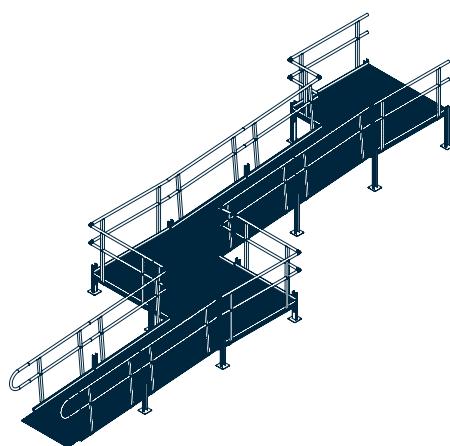


**SWITCHBACK WITH A STRAIGHT STARTING PLATFORM**

A switchback platform changes the ramp direction by 180°. This configuration maximizes the amount of ramping that can fit onto the property.



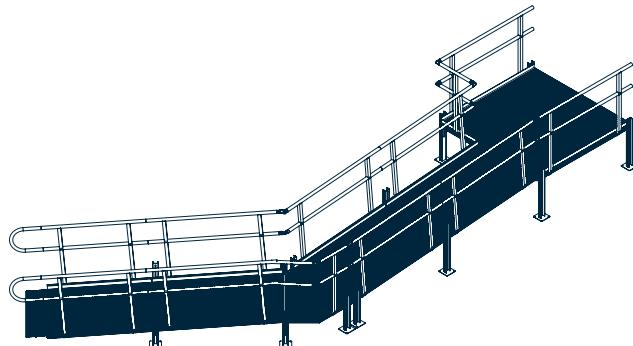
**SWITCHBACK WITH A STARTING TURN PLATFORM**



**S-TURN**

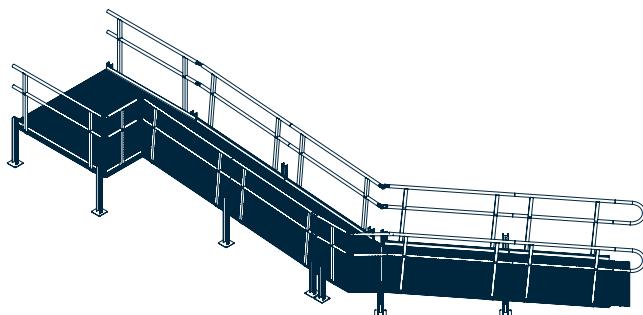
Multiple turn platforms can be used on a ramp layout to land the ramp where it is needed.

This turn platform configuration allows the ramp to shift over to avoid a large obstacle or land in a location that is not in line with the start of the ramp.



**RIGHT PIE PLATFORM**

The Liberty Series™ pie platforms are not interchangeable and are named for the direction the ramp turns from the home entrance.



**LEFT PIE PLATFORM**

The Liberty Series™ pie platforms are not interchangeable and are named for the direction the ramp turns from the home entrance.



**RAMP WITH REST PLATFORM**

Ramp runs of 30' or longer need a rest platform under ADA guidelines. A platform that changes the ramp's direction by 90° or 180° also functions as a rest platform. In the pictured diagram, the rest platform is in the middle of the 30' run.

# 9. Correct Incline Determination

ADA-compliant ramps have a ratio of incline of **4.8°/1:12** slope. For residential use only, National Ramp recommends no greater than a **6.4°/1:8** slope, and only for users in a power wheelchair or manual wheelchair being pushed up the ramp by a caretaker. Some mobility devices may have a higher maximum allowable slope; however, strong consideration should be given to any inclines steeper than **6.4°/1:8**. Refer to the mobility device's Owner Guide to confirm its maximum allowable slope.

Inclines in gray on the chart below are safe for use based on the mobility device.

National Ramp strongly advises against any slopes in red.

	2'	3'	4'	5'	6'	7'	8'	9'	10'
3"	7.2°	4.8°	3.6°	2.9°	2.4°	2.0°	1.8°	1.6°	1.4°
4"	9.6°	6.4°	4.8°	3.8°	3.2°	2.7°	2.4°	2.1°	1.9°
5"	12°	8.0°	6.0°	4.8°	4.0°	3.7°	3.0°	2.7°	2.4°
6"	14.5°	9.6°	7.2°	5.7°	4.8°	4.1°	3.6°	3.2°	2.9°
7"		11.2°	8.4°	6.7°	5.6°	4.8°	4.2°	3.7°	3.3°
8"		12.8°	9.5°	7.7°	5.4°	5.5°	4.8°	4.2°	3.8°
9"		14.5°	10.8°	8.6°	7.2°	6.2°	5.4°	4.8°	4.3°
10"			12.0°	9.6°	8.0°	6.8°	6.0°	5.3°	4.8°
12"			14.5°	11.5°	9.6°	8.2°	7.2°	6.4°	5.7°
14"				13.5°	11.2°	9.6°	8.5°	7.4°	6.7°
16"					12.8°	11.0°	9.6°	8.5°	7.7°
18"					14.5°	12.4°	10.8°	9.6°	8.6°
20"						13.8°	12.0°	10.7°	9.6°
22"							13.2°	11.8°	10.6°
24"							14.5°	12.8°	11.5°
26"								13.9°	12.5°
28"								15.0°	13.5°
30"									14.5°

INCLINE CHART

\* This chart is provided as a resource only and National Ramp assumes no responsibility for determining a safe ramp incline on any specific ramp.

# 10. Evaluation Process

The evaluation is one of the key components to a successful and safe ramp installation. If done correctly, it can be the difference between a quick and easy installation or one that is complicated and delayed. This next section provides you with the resources you need to conduct a thorough and accurate evaluation.

## TOOLS FOR A SUCCESSFUL EVALUATION:

- Tape Measure
- Laser Level or String
- Cones or other items to plot out layout
- Evaluation Form

## WHAT TO CONSIDER DURING THE EVALUATION:

Before plotting the layout options for the ramp, understand how the ramp will be used.

A person self-ambulating in a manual wheelchair to their personal vehicle, a person in a powerchair who uses public transportation, and a person who is transported via emergency services all have very different needs for the ramp and will require different considerations for grade and ramp locations.

Do not land the ramp in the middle of the yard, or on uneven terrain so that the mobility device does not get stuck in soft or muddy ground. Do not end the ramp where it is an obstruction to safe passage of any vehicle or pedestrian. Add additional ramping as needed to allow the ramp to reach a hard surface, such as a walkway or driveway, or for the vehicle loading location. Use an aluminum landing pad if the ramp cannot end on a solid, flat surface.

Consider other people at the property who may not be using the ramp, so the layout doesn't inconvenience them. Do not block access to shared entrances.

Once it is determined where the ramp should start and end, take measurements to determine the length of ramp needed. Measure the starting height, including door thresholds, and then measure the height from the door threshold to the ending point (use of the laser level is strongly advised).

With the total height determined, plot out how to best fit the needed ramping on the property, keeping ADA guidelines in mind (see page 24 for ADA guidelines).

## OTHER CONSIDERATIONS FOR RAMP LAYOUT:

- **Property obstacles:** These may include utilities, landscaping, gutter lines, septic tanks, A/C units, and access to sheds or garages. Be sure to also check clearings for power lines, carports, and awnings, for the safety of anyone who may be walking on the ramp.
- **Grade variations:** Be aware of changes including a cross slope, where the ground changes across the width of the ramp, or sudden rises or dips that will require different leg heights. *See page 37 for more on grade variations.*
- **Knowing the user and their mobility device:** Long scooters may require a large turn radius for 90° turns, and the ADA recommended 4.8° slope may be too steep for some self-ambulating users.
- **Approvals and local codes:** Does a homeowner, Home Owner's Association, or property manager need to approve the ramp layout? Is a permit needed? Does the town require ramp setbacks, or the use of vertical pickets?
- **Screen door vs. inset door:** For a screen door, the ramp cannot impede with the ability to open and close the door. For an inset door, you need a smooth transition between the ramp and door.

# 11. Considerations for Bariatric Ramps

The Liberty Series™ system is available in two widths: 36" and 48". The 36" wide standard ramping has a weight capacity of 1,000 lbs, and the 48" wide bariatric ramping has a weight capacity of 1,200 lbs.

! The weight capacity includes the ramp user, their mobility device and any added equipment, as well as a caregiver and any others simultaneously on the ramp.

In addition to when the weight limit of the 36" wide ramping may be reached, a bariatric ramp may also be required when the mobility device is particularly wide, including bariatric manual chairs and all-terrain scooters. Wherever the width of the mobility device from its furthest points is 32" or greater, a bariatric ramp is advised.

Additionally, some may choose a bariatric ramp when a long-term care option includes a large powerchair, so that the ramping does not need to be switched out after installation.

The installation process for both widths is the same, but the Bottom Transition Plate (BTP) and end loops for the bariatric ramp are both 2 feet long. When evaluating for a bariatric ramp, be advised that 180° switchback platforms must be 5'x10', as all components will not fit on a 5'x8' switchback platform. Also, National Ramp advises that you use a 5'x6' platform for 90° turns on bariatric ramps, as some users find that turning on the 5'x5' platform is too tight for the turn radius of their mobility device.

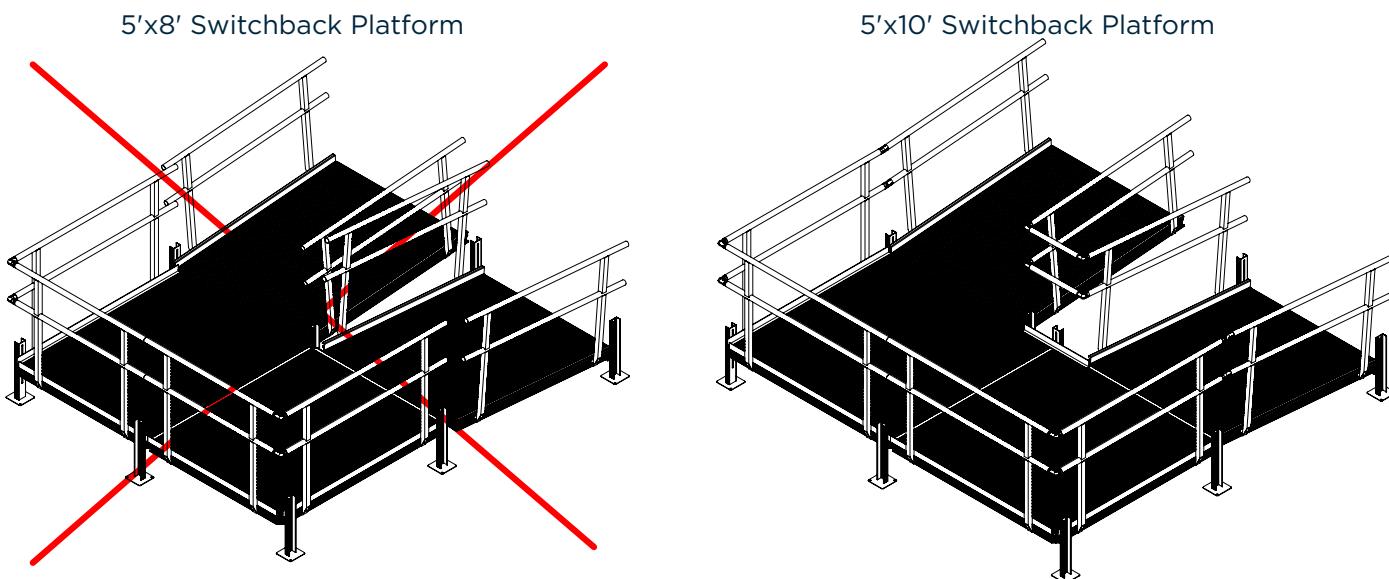
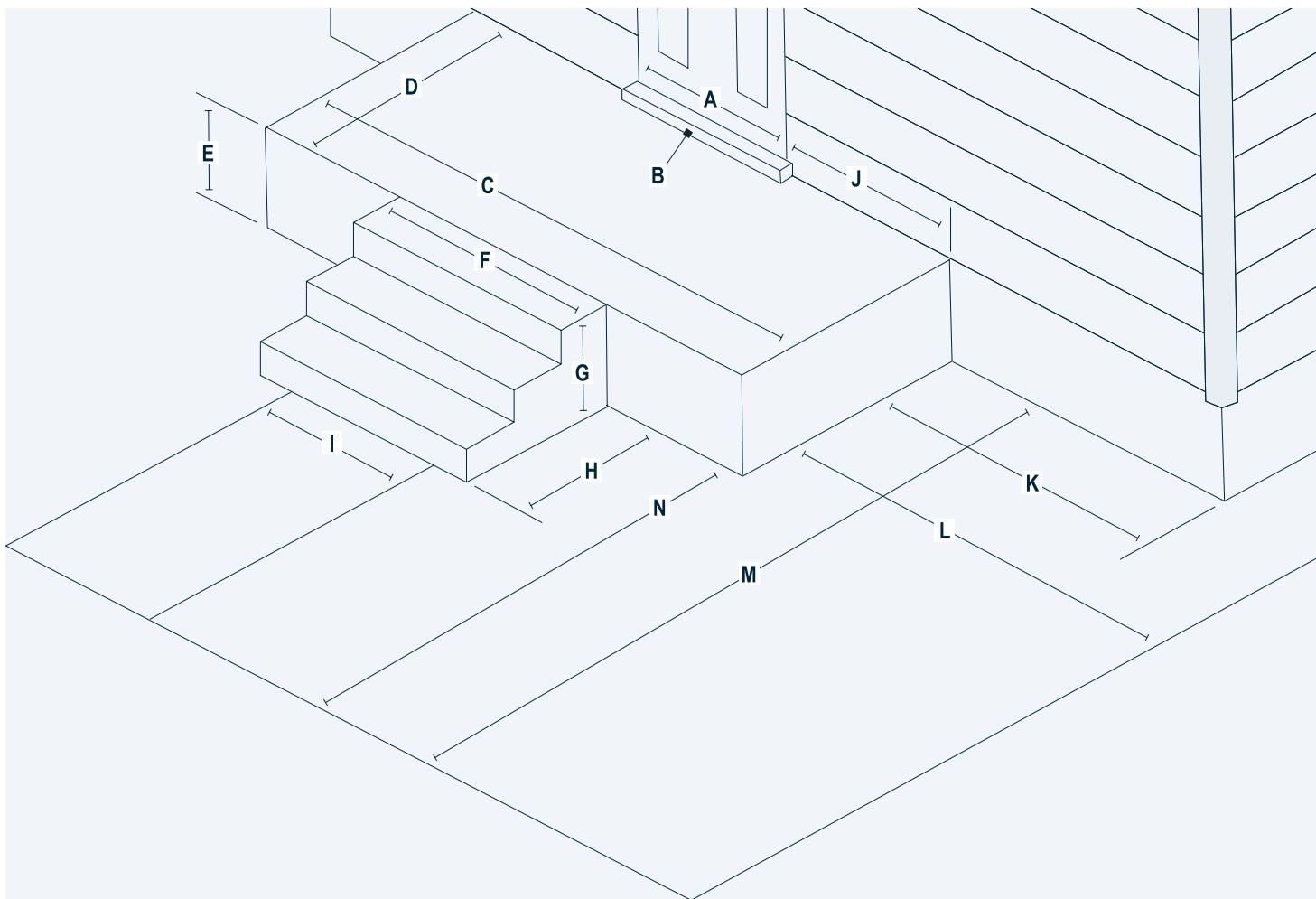


image 3

# 12. Measuring a Ramp

Complete and accurate measurements will make sure your ramp layout works on the property.

1. Measure door width and analyze door swing.
2. Measure the height of the step at the door – anything greater than 3" should have a platform. Absolute minimum elevation for a platform is 2.5", but only if the stoop is perfectly level.
3. Measure overall step height.



## MEASUREMENTS NEEDED:

- A** Door Width
- B** Rise at Door: Exterior or Interior
- C** Porch Width
- D** Porch Depth
- E** Rise at Porch
- F** Width of Steps
- G** Rise of Steps (Total)

- H** Depth of Steps (Total)
- I** Sidewalk Width
- J** Door to Corner of Porch
- K** Porch to Corner of House
- L** Porch to Driveway
- M** House to Sidewalk
- N** Porch to Sidewalk

# 13. Drawing Your Configuration

When drawing your configuration, you will want to include all details - house, porch, sidewalks, driveway, doorway, and dimensions. Also, draw out your ramp dictating what components you are using, so it is clear when you come back for the install.

**national ramp™** | **FREEDOM NOW**

**RAMP LAYOUT FORM**

Date \_\_\_\_\_

Evaluator's Name \_\_\_\_\_

Customer's Name \_\_\_\_\_  
Address \_\_\_\_\_

**SAMPLE**

SCALE: 1 SQUARE = 1 FOOT. Be sure to note all obstacles such as driveways, sidewalks, trees, shrubs, etc.

front door

screen door  
5' x 5'

House

column

3'

5' x 5'

5' 5' 3' BTP

Drive way

Lawn

lamp post

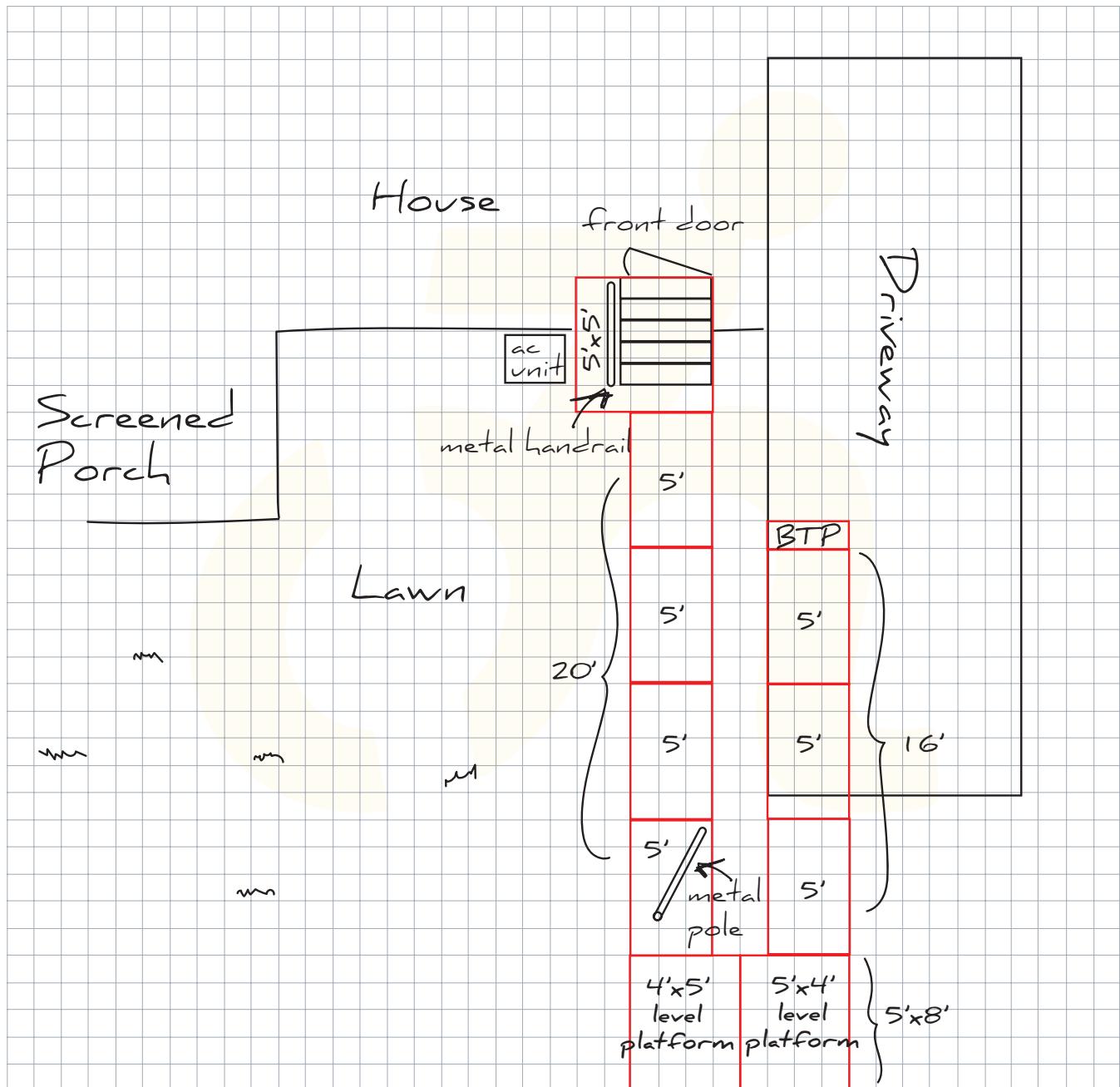
NOTES:

Date \_\_\_\_\_ Customers Name \_\_\_\_\_

Evaluator's Name \_\_\_\_\_ Address \_\_\_\_\_

# SAMPLE

SCALE: 1 SQUARE = 1 FOOT. Be sure to note all obstacles such as driveways, sidewalks, trees, shrubs, etc.



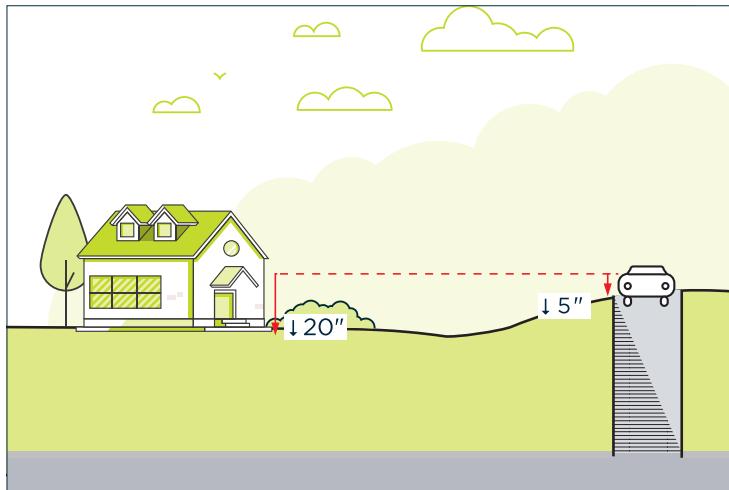
NOTES: \_\_\_\_\_

Homeowner will remove handrail, installer will remove metal pole

# 14. Grade Variations

Calculating grade variations are an important part of the evaluation.

Changes to upgrade and downgrade can affect the amount of ramping needed for a safe layout, while a significant cross slope can impact the leg lengths needed for the ramp to be level across its width.



**UPGRADE** ▶ upward slope of the ground



**DOWNGRADE** ▶ downward slope of the ground



**CROSS SLOPE** ▶ change in slope that runs across the width of the ramp



# OVERVIEW OF THE LIBERTY SERIES™ SYSTEM



# 15. Liberty System

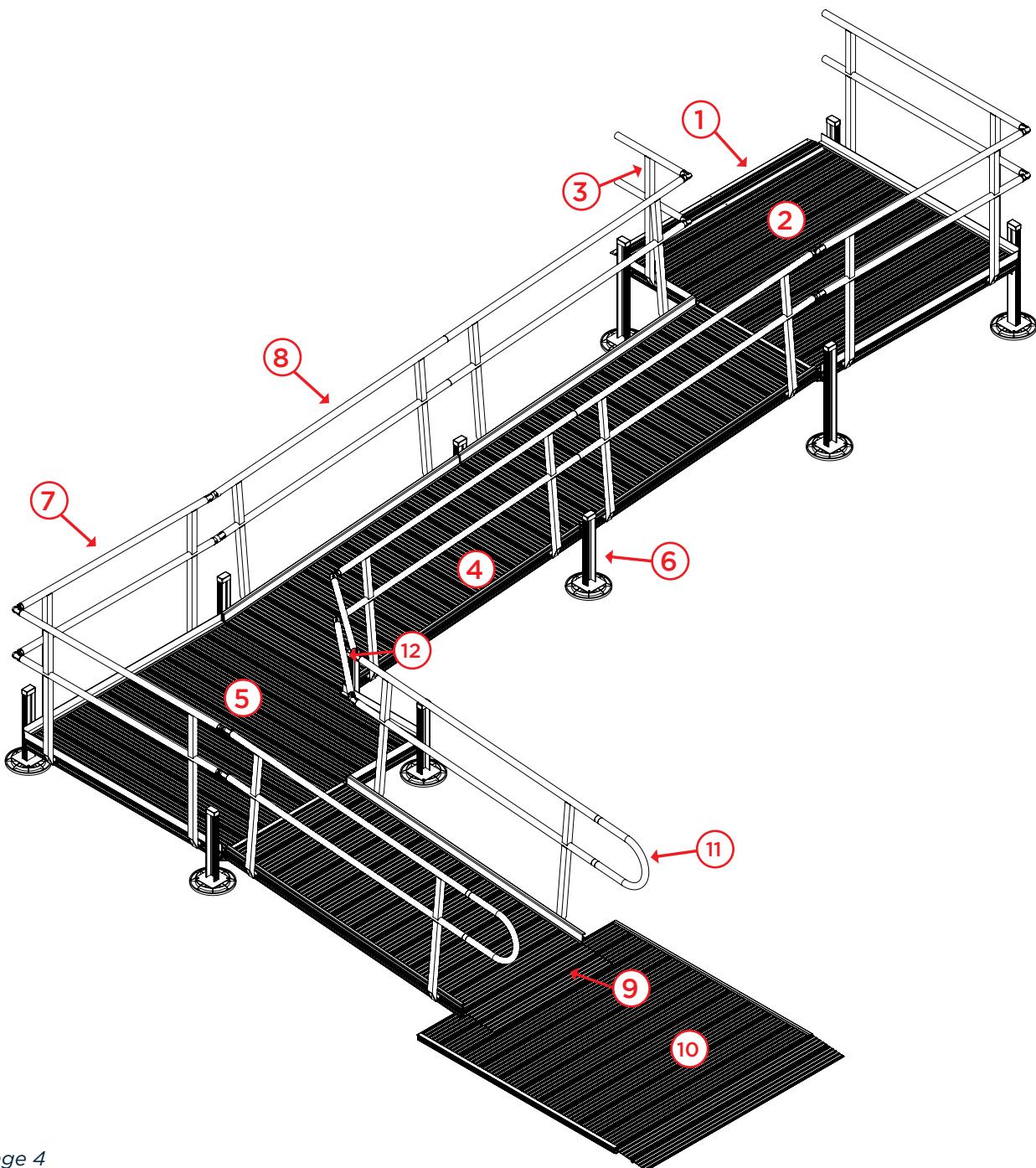


image 4

- 1. Top Transition Plate (TTP)
- 2. 5'x5' Turn Platform
- 3. T-Post
- 4. Ramp Sections
- 5. 5'x5' Turn Platform
- 6. Legs
- 7. Platform Handrails
- 8. Section Handrails
- 9. Bottom Transition Plate (BTP)
- 10. Landing Pad
- 11. End Loops
- 12. Filler Pipe

# 15. Liberty System

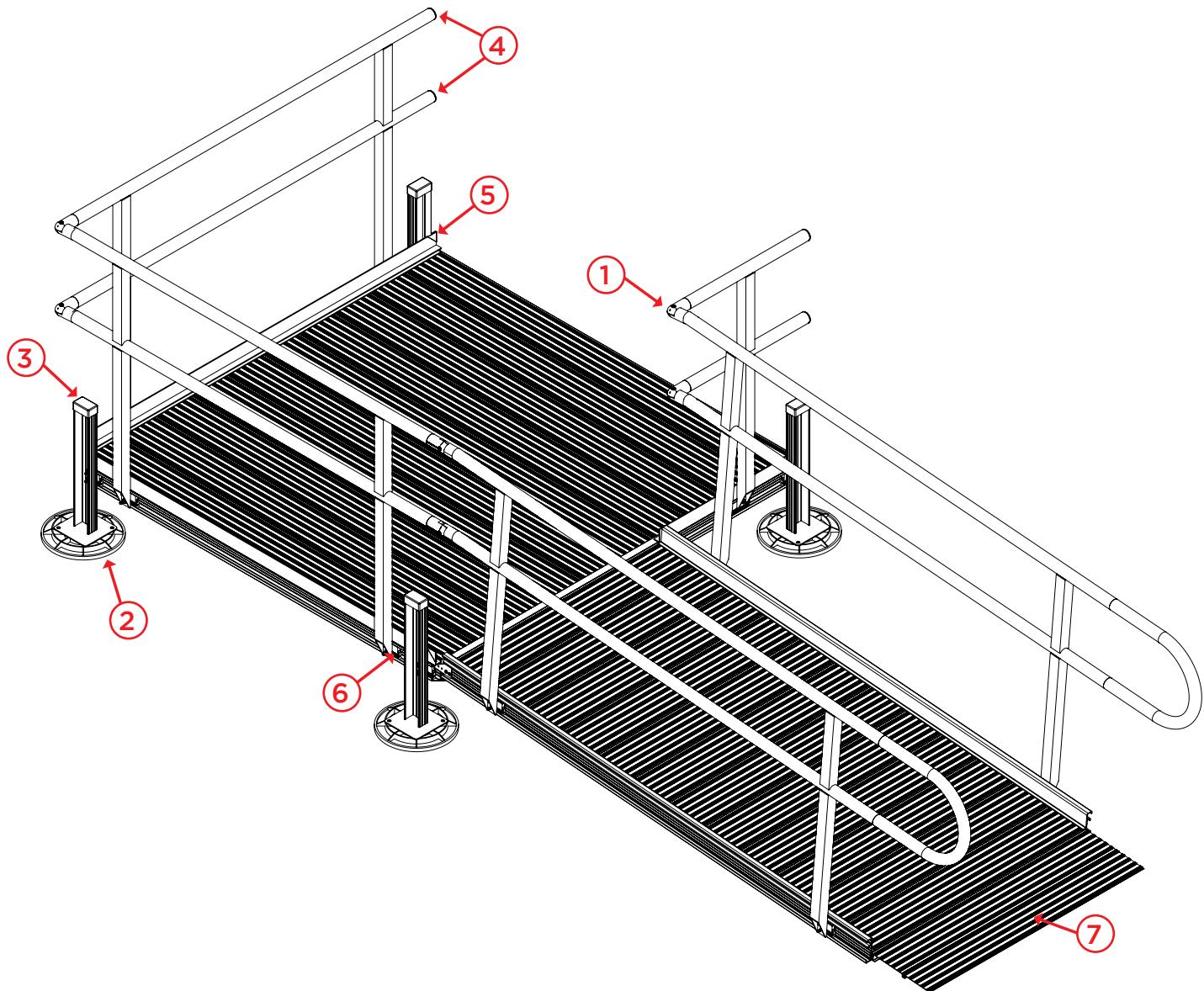
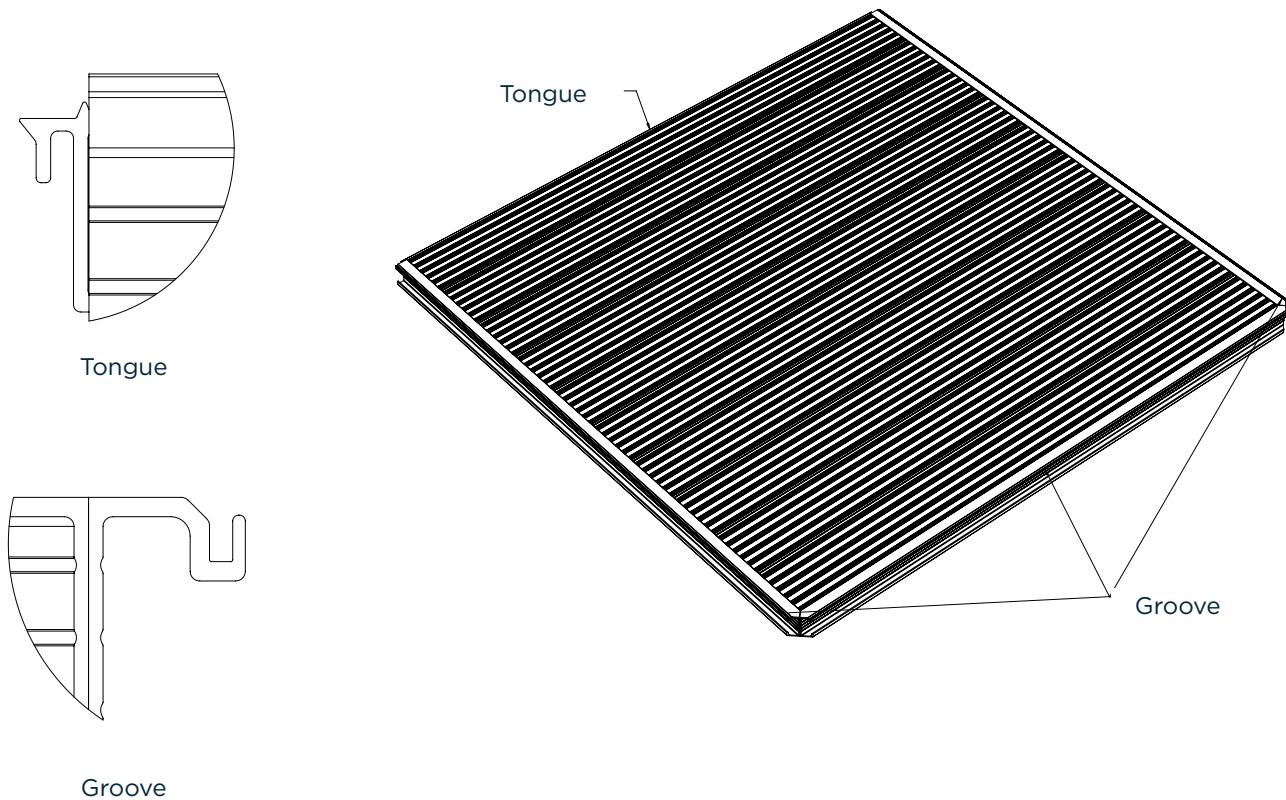


image 5

1. Elbows
2. Celebration Footer Pads™
3. Leg Caps
4. End Caps
5. Corner Cover
6. Universal Brackets
7. Bottom Transition Plate (BTP)

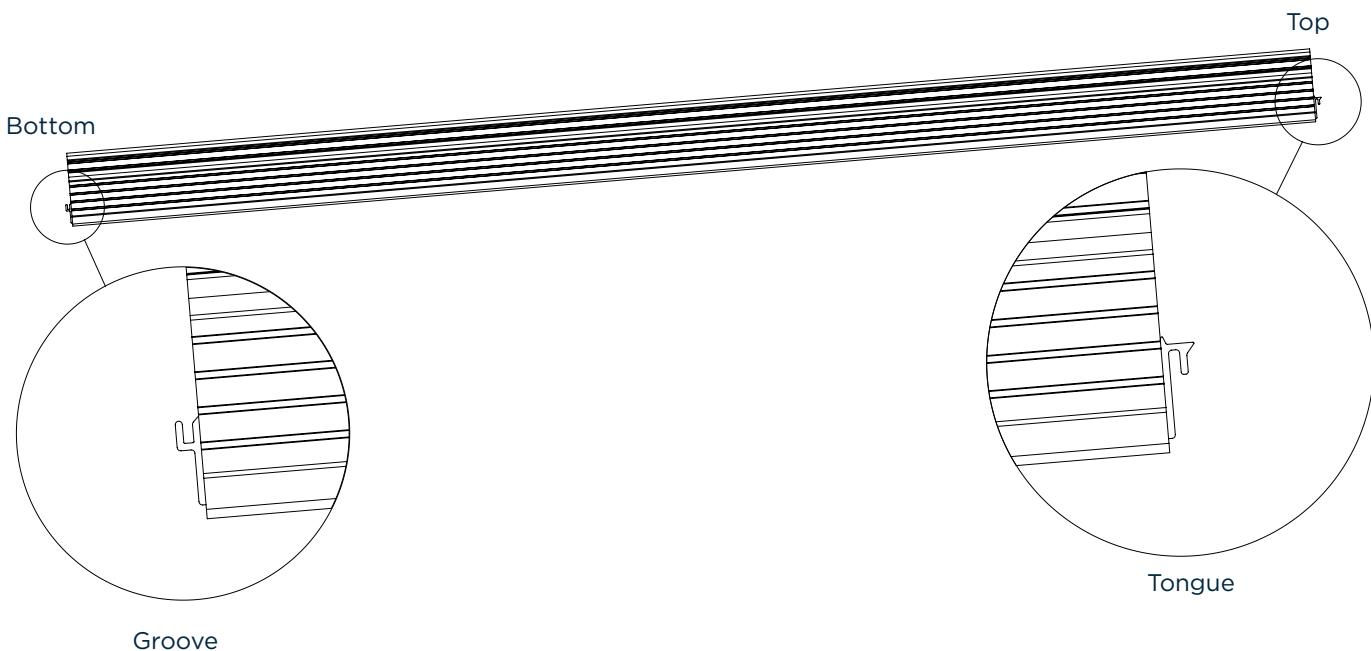
The Liberty Series™ ramp system is made from 100% aluminum, with a slip-resistant surface. The system connects through a tongue and groove system.

## PLATFORM



*image 6*

## RAMP



*image 7*

All platforms have three sides with a groove and one with a tongue, while all ramp sections have one tongue and one groove. The tongue side of the ramp or platform section hooks onto the groove of the section ahead. A ramp or platform section can hook onto any platform groove side.

Platforms can be attached to each other to create configurations allowing for wider turns, to extend over an obstacle, or to change the direction of the ramp 180°.

The slip-resistant treads always run horizontally in the direction that the ramp runs as you travel down the ramp from the entrance. The treads are in sets six inches long. The treads on the platform run parallel to the tongue side, and platforms are always measured starting with the width: A 5'x4' platform is 5' wide and 4' long, while a 4'x5' platform is 4' wide and 5' long.

All legs, handrails, T-Posts, etc. attach to its ramp or platform with the use of universal brackets.

To determine if a ramp layout is turning left or right, describe it as if you were traveling down the ramp from the home entrance.



## BEFORE YOU INSTALL:

Review the packing list before leaving for the job site to make sure everything needed was in the shipment.

Confirm that the measurements taken at the evaluation are accurate and that the property has not changed in a way that will impact the installation.

Lay out all main components in the general area that they will be going, starting with the top of the ramp. Place all handrails next to each platform and ramp section. Place all hardware bags on each section or platform. Confirm that all components are on-site and undamaged.

Complete any needed site prep.



## TIPS AND TRICKS

While ramp sections can be installed either level or at a slope, platforms should not be installed at a slope. While a level platform is recommended, platforms may be set at an angle of up to 1° to allow for rain runoff.

Do not fully tighten legs and handrails until all components are up, to allow for adjustments.

Do not walk on the ramp until legs and handrails are fully tightened, and do not allow anyone else to be on the ramp until it is finished and checked for safety.

Ramp slopes must be consistent within each ramp run. A ramp not installed at 4.8° should have as consistent of a slope as possible across the entire ramp.

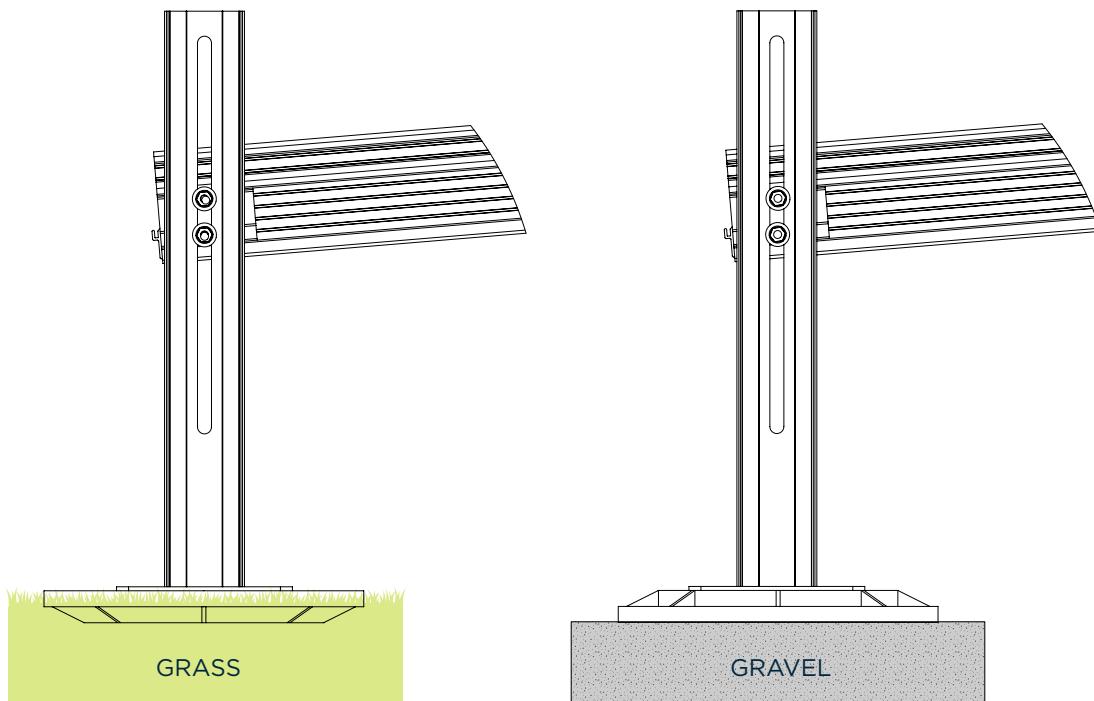
## TOOLS FOR INSTALL:

- 2' level (with a laser readout recommended)/4' level
- Impact Driver with a 9/16" socket, 3/8" socket and a Phillips-head bit
- Tape Measure
- 3/16" and 5/32" Allen Keys
- Pipe Cutter for 1 1/2" tubing
- Sanding/Filing Tool/Deburring Tool
- Sawhorses or other portable workbench
- String

## 16. Celebration Footer Pad™ Use

Legs should not be placed directly on a soft surface, such as dirt, grass, or loose gravel, as the legs could sink over time; instead, place legs on cement paver stones, available in hardware stores, or National Ramp Celebration Footer Pads™. When a Footer Pad is being used on a soft surface, it should be installed with the ribbed side on the ground.

The Footer Pads should not be used on hard surfaces, such as concrete and pavement, as they can easily be knocked out of place, causing the ramp to be unsteady. When faced with a surface such as gravel or cracked concrete, try to first place the leg on the Footer Pad, and then give the Footer Pad a tap with your foot. If it easily slides out of place, remove it and place the leg directly on the ground. If it stays in place, keep it, with the ribbed side facing up.



*image 8*

When a leg is going to rest on a Footer Pad or paver stone, the leg height will be measured to the Footer Pad, and not to the ground.

# 17. Leg Placement

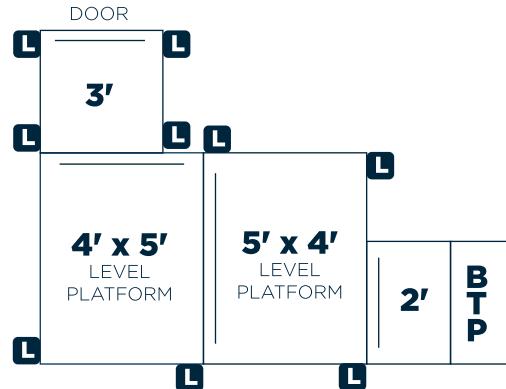
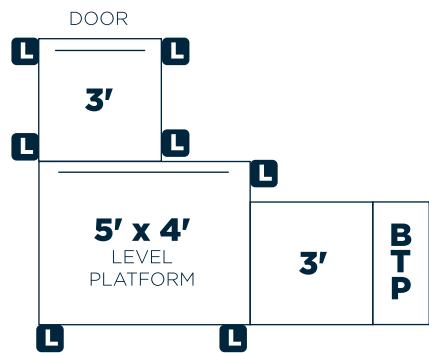
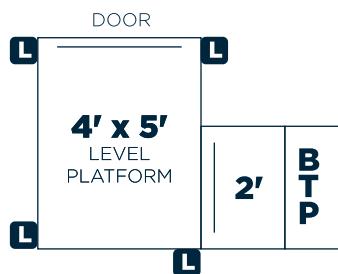
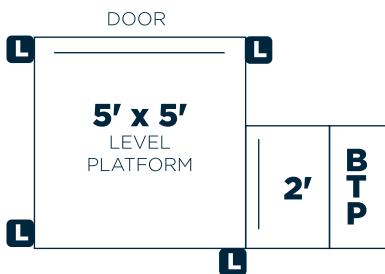
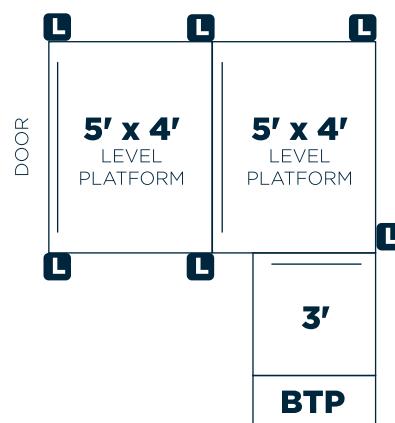
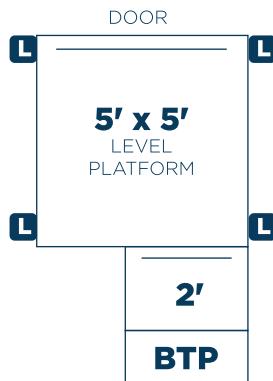
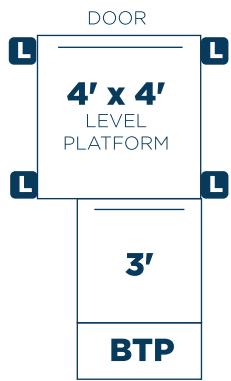
Refer to the below chart on proper leg placement for various layout options.

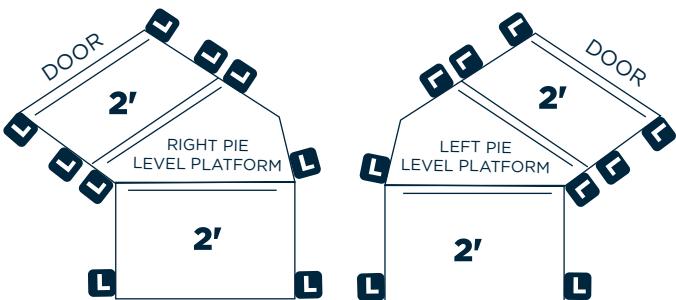
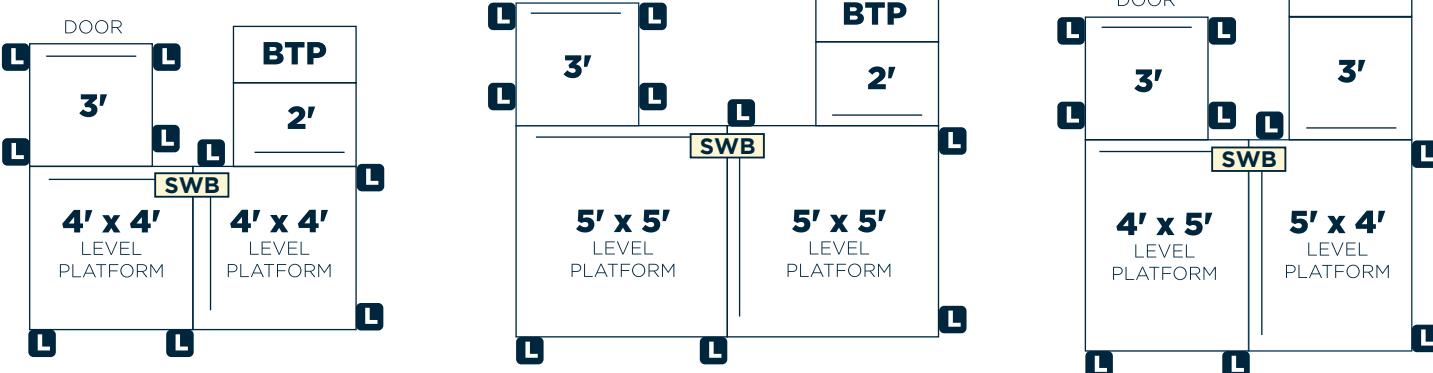
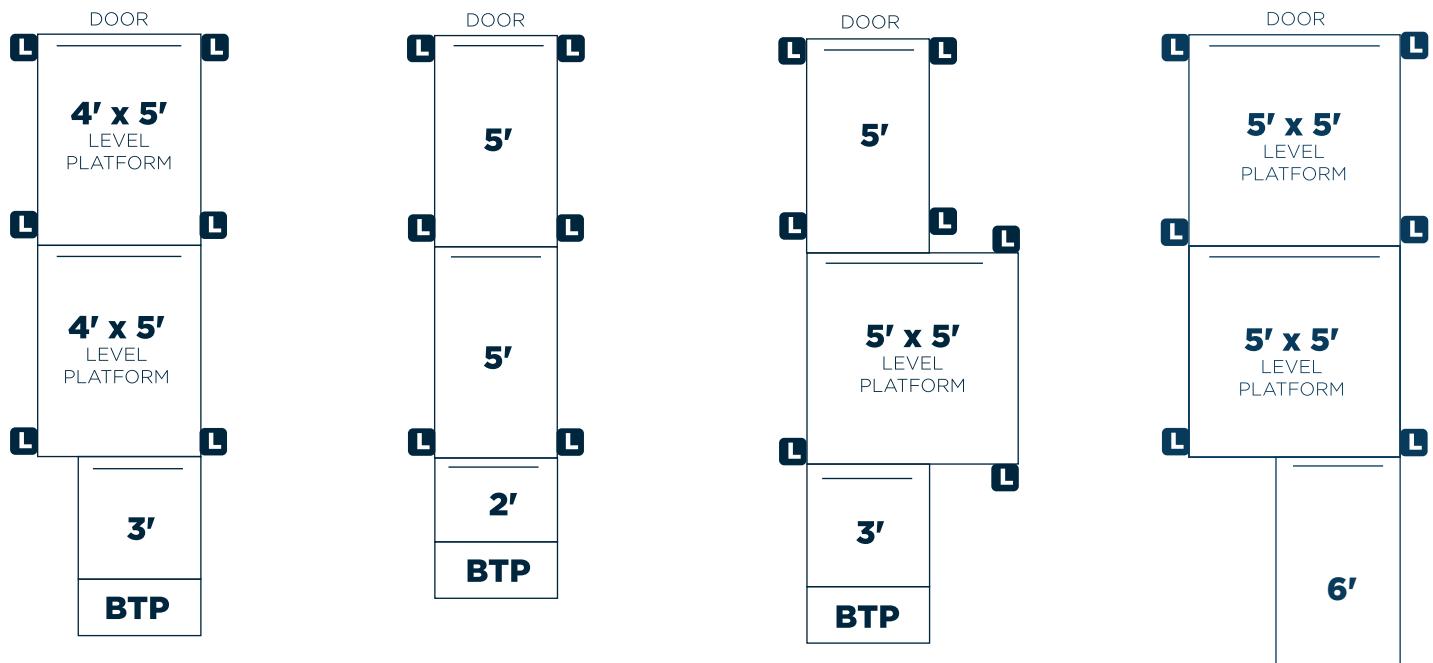


Decking runs on 4' direction.  
TONGUE is on one 4' side.  
Universal brackets can only  
mount on 3 sides with GROOVE.  
TONGUE hooks into GROOVE  
on 3 sides.



Decking runs on 5' direction.  
TONGUE is on one 5' side.  
Universal brackets can only  
mount on 3 sides with GROOVE.  
TONGUE hooks into GROOVE  
on 3 sides.







# RAMP INSTALL



# 18. Step-by-step

## 18.1 ▶ STARTING RAMP

Most ramp systems will start with a platform, especially if the ramp is starting at the door. The following steps apply whether starting the ramp system with a platform at the door or a ramp section off a porch.



### TIPS AND TRICKS

The minimum elevation for a platform at the door is 2.5"

**18.1.1.** Determine the starting height for the ramp system; when it begins at a door, the final height of the first platform (or ramp section) should be below the door threshold allowing the door to open without interference.

### CORRECT INSTALL

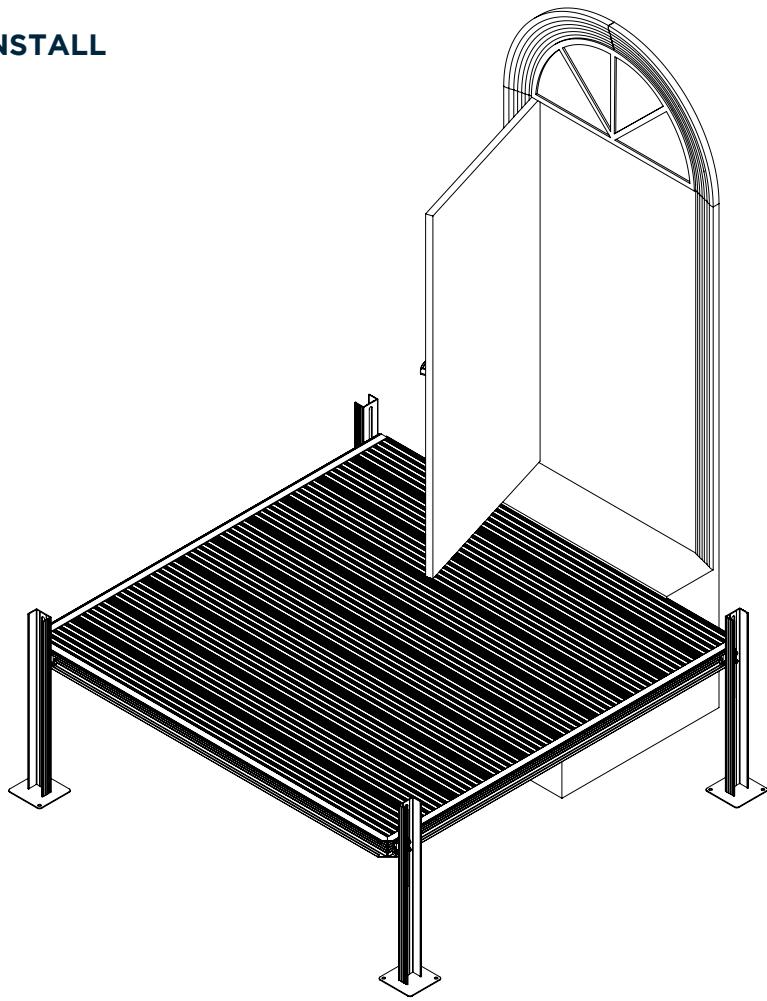
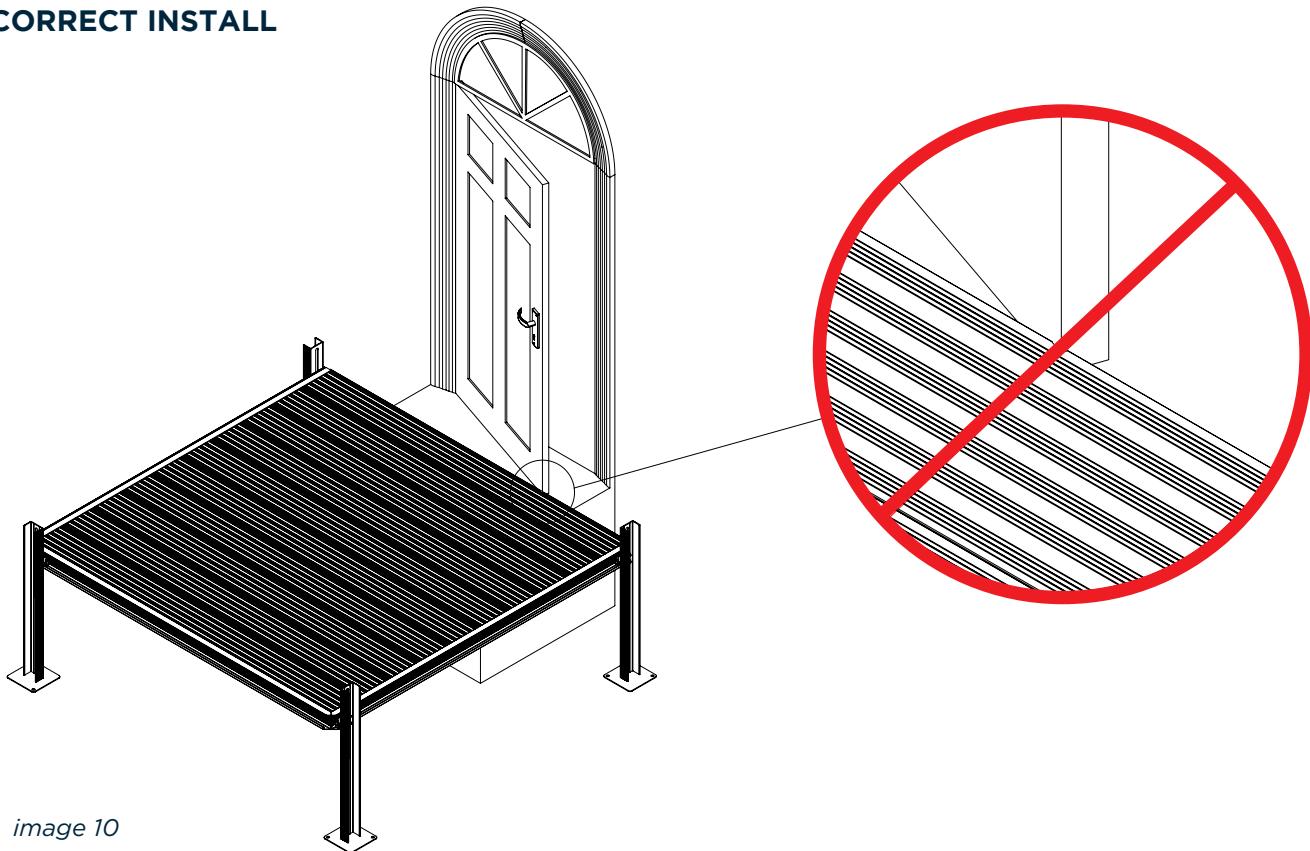


Image 9

## INCORRECT INSTALL



**18.1.2.** Slide in one (1) universal bracket for each leg and vertical support of the handrails, adding two (2) 3/8"-16 x 1-1/4" Hex Head Bolts per universal bracket.

**18.1.3.** Mount the handrails, hand-tightening the bolts to allow for later adjustments.

**18.1.4.** Insert universal bracket and mount T-Post if ramp is starting with a turn platform.

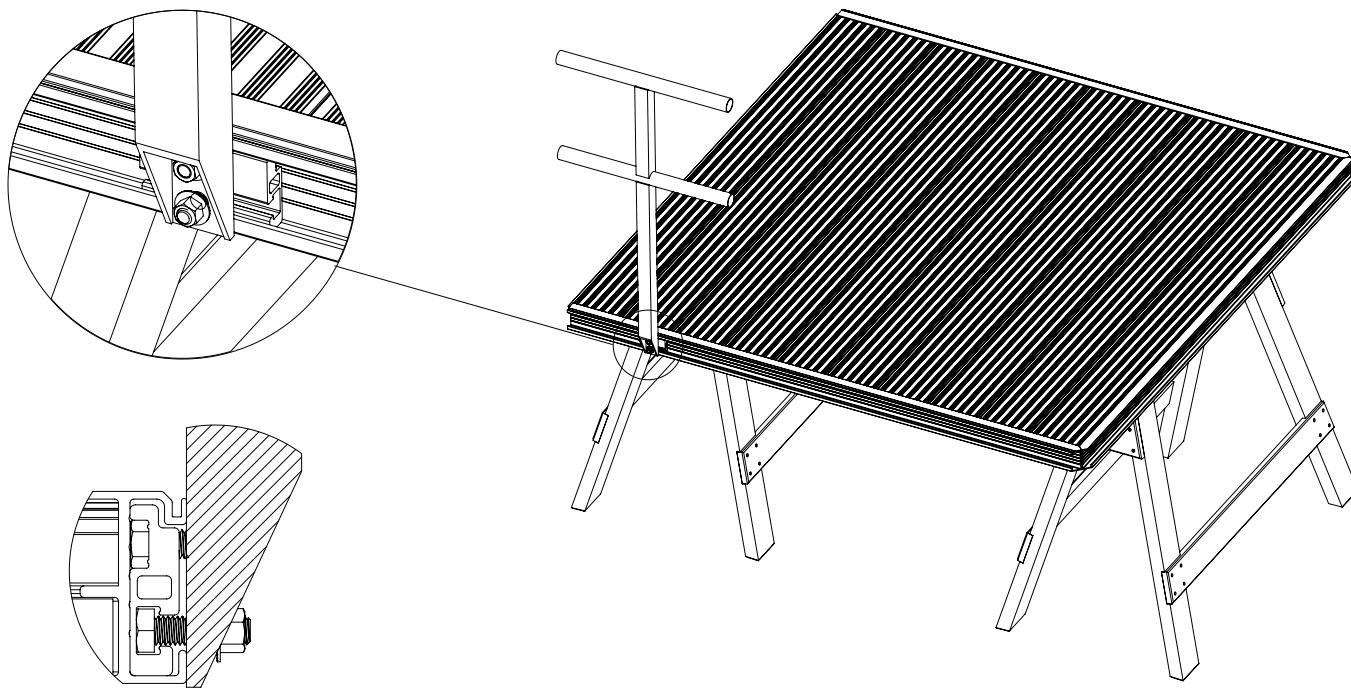


image 11

**18.1.5.** Set legs to correct height.

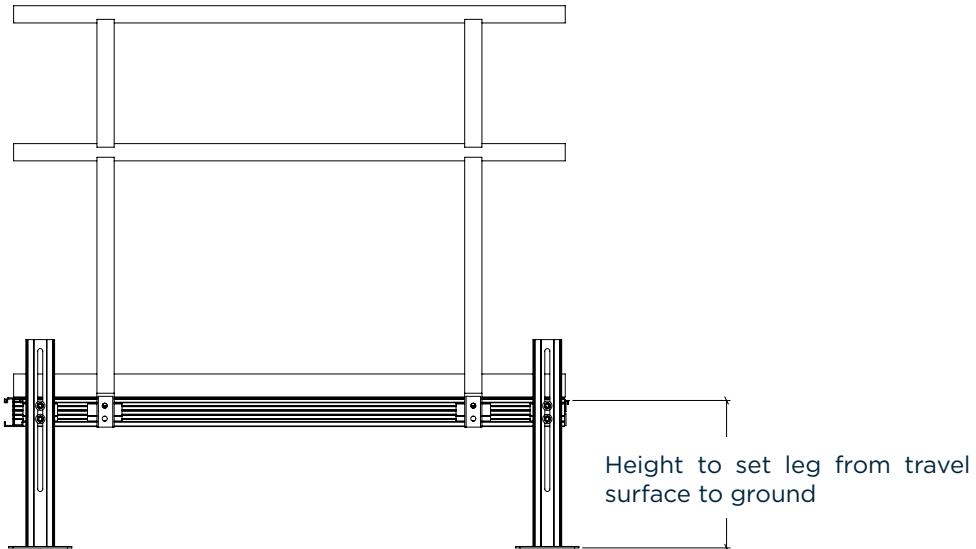


image 12



**TIPS AND TRICKS**

The starting section will always have legs at both the top and bottom, whether a platform or ramp section. When the first section is sloped ramping, account for the slope when measuring the leg height for the bottom pair of legs. See page 56-57 for more on setting the leg height for sloped ramping.

**18.1.6.** Measure the height that the legs will be set to, from the platform or ramp's travel surface (not the toe guard) to the ground or Celebration Footer Pad™.

**18.1.7.** Select the shortest leg that is at least 2" above the measured height.

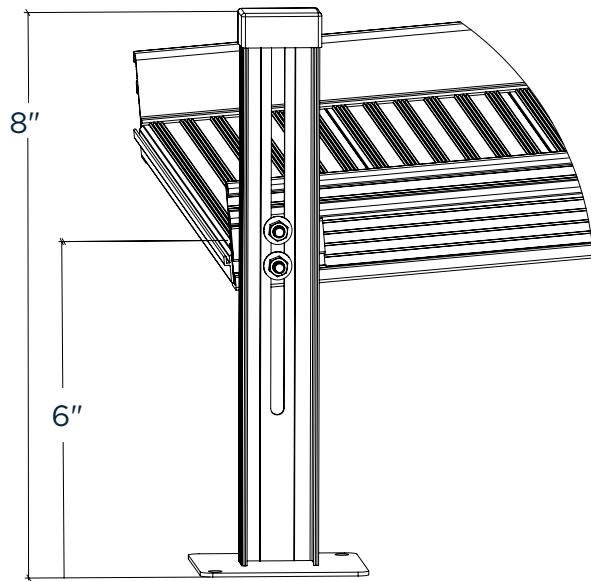


image 13

**18.1.1.** Mount the legs to the platform or ramp section, without fully tightening the bolts to allow for later adjustments.

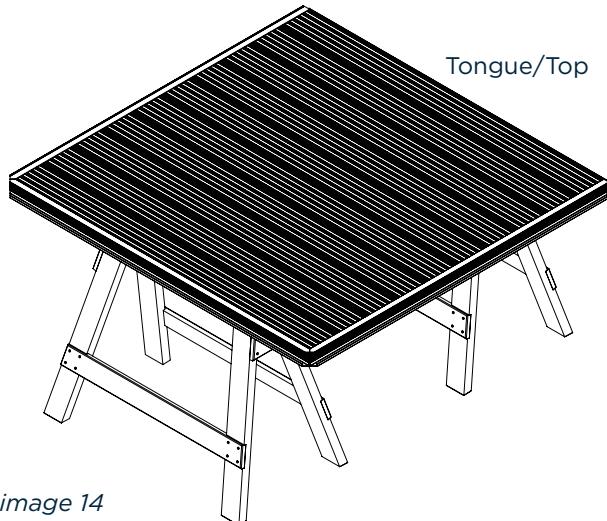
**18.1.2.** Place the section in position, with the tongue side against the door/porch.

## 18.2 ▶ INSTALLING A PLATFORM

The following steps are similar to **section 19.1**, but are for a platform connecting to a ramp or platform section.

### Step 1 ▶ Pre-mount the handrails and legs

**18.2.1.** Place the platform upright on sawhorses, with the tongue side facing forward.



**18.2.2.** Slide in one (1) universal bracket for each leg and vertical support of the handrails, adding two (2) 3/8"-16 x 1-1/4" Hex Head Bolts per universal bracket.

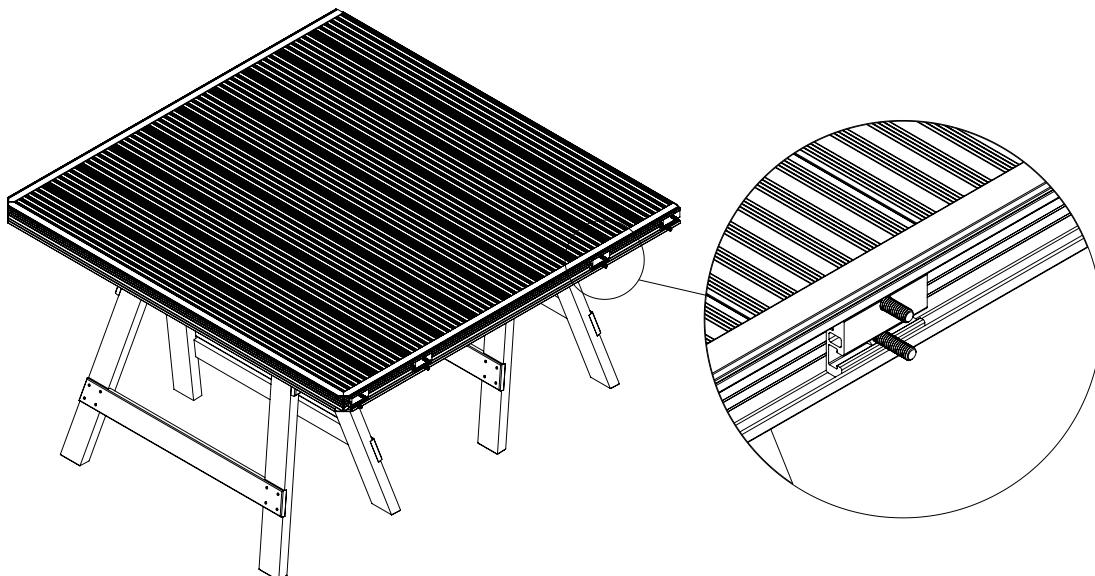


image 15

**18.2.3.** Mount the handrails, hand-tightening the bolts to allow for later adjustments.

**18.2.4.** Set the legs to the correct height.

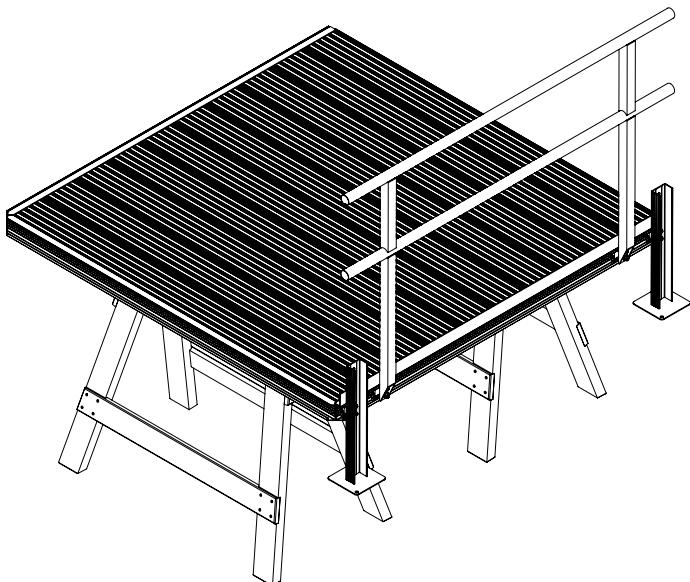


image 16

**Step 2 ▶ Carry the platform over to the ramp and hook the tongue into the groove of the last installed ramp or platform section.**

**Step 3 ▶ Level the platform**

**18.2.5.** Adjust the legs if needed so the platform is level and at the correct height, and the legs are plumb (vertically straight).

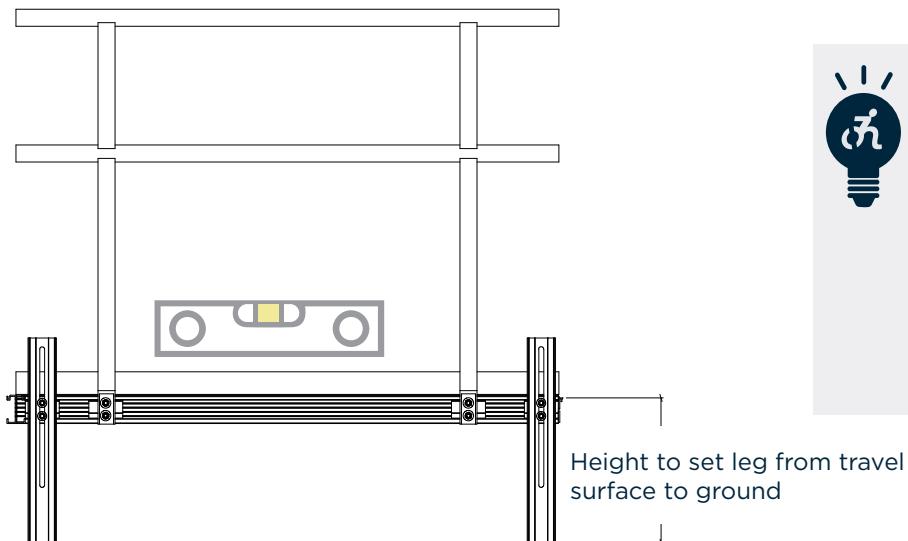


image 17



#### TIPS AND TRICKS

While it is recommended for the platform to be installed completely level, the platform can be installed at up to a 1° angle cross slope (1/4" per foot) to allow for rain runoff.

## Step 4 ▶ Install toe guards

**18.2.6.** Any edge without a toe guard requires a toe guard installation. The toe guard is affixed to the platform with two pan head driller screws.

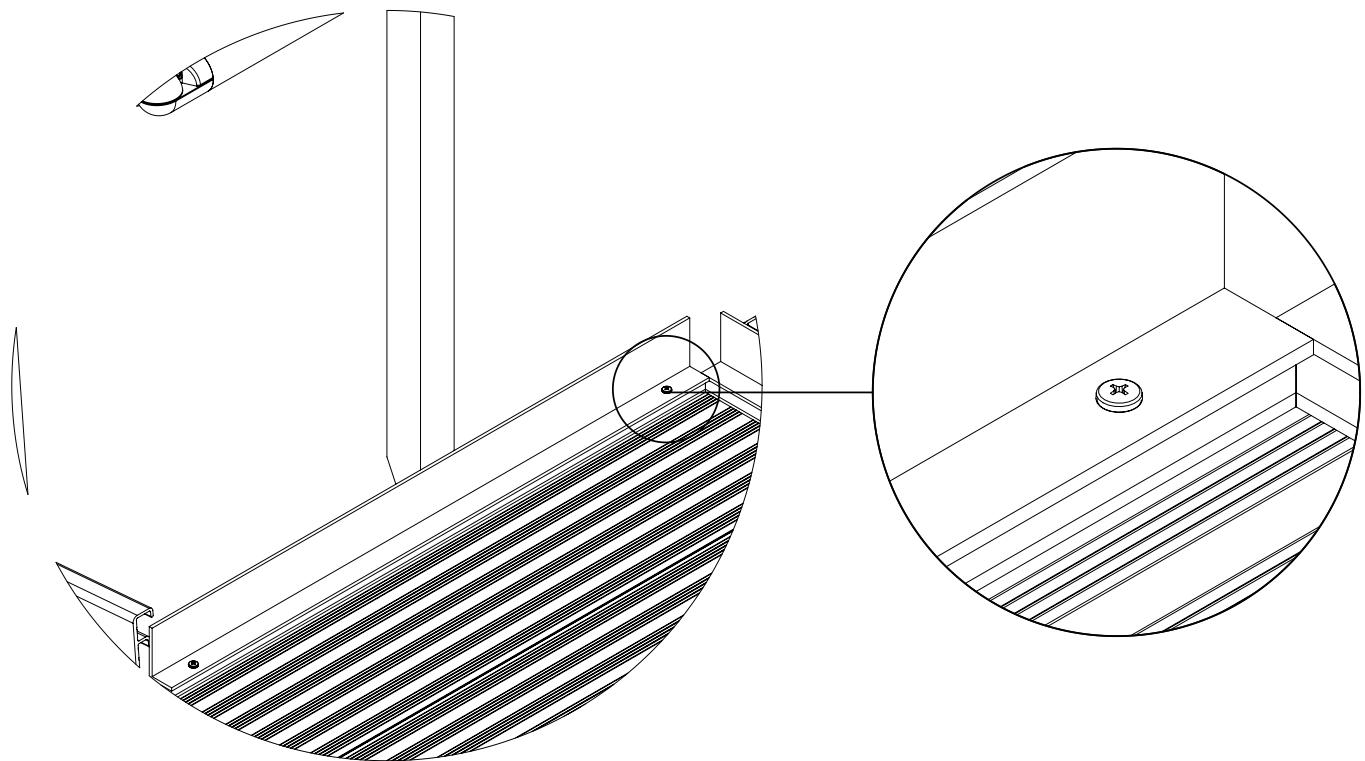


image 18

## 18.3 ▶ INSTALLING A RAMP SECTION

The below instructions are for the installation of a ramp section to an existing platform or ramp section.

### Step 1 ▶ Pre-mount the handrails and legs

**18.3.1.** Placing the ramp upright on sawhorses, with the tongue side facing forward, slide in one (1) universal bracket for each leg and vertical support of the handrails, making sure to add two (2) bolts per universal bracket.



*image 19*



#### TIPS AND TRICKS

Ramp sections of 2', 3', 4', 5', and 6' will need one set of legs at the end of the section.

Ramp sections of 8' and 10' will need two sets of legs, one in the middle and one at the end of the section.

**18.3.2.** Mount the handrails, hand-tightening the bolts to allow for later adjustments.

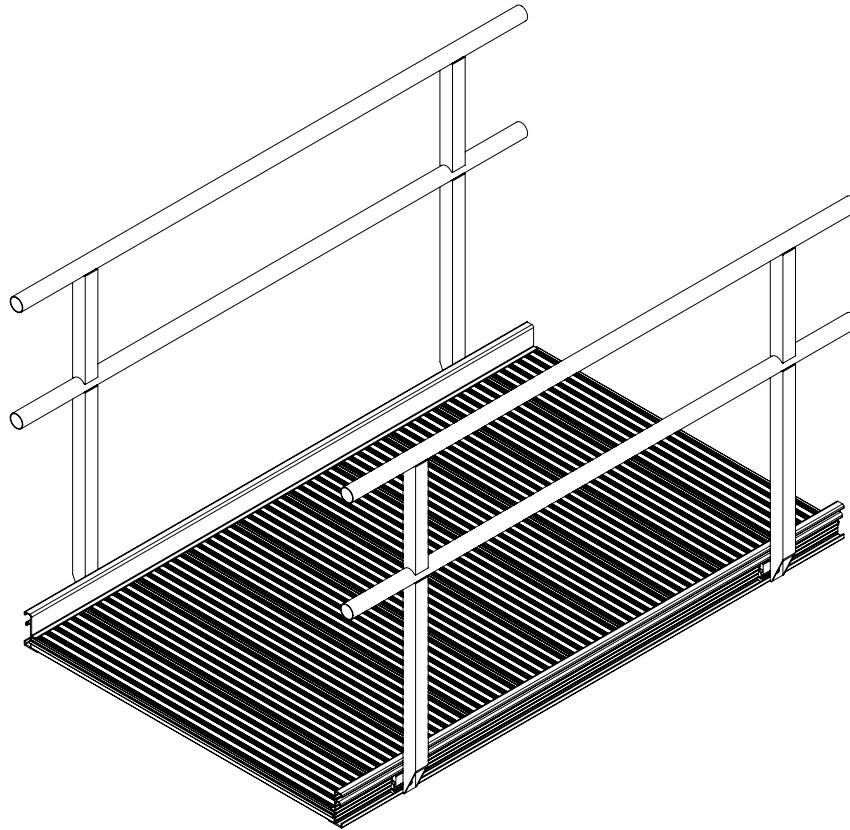


image 20

**18.3.3.** Set legs to correct height.

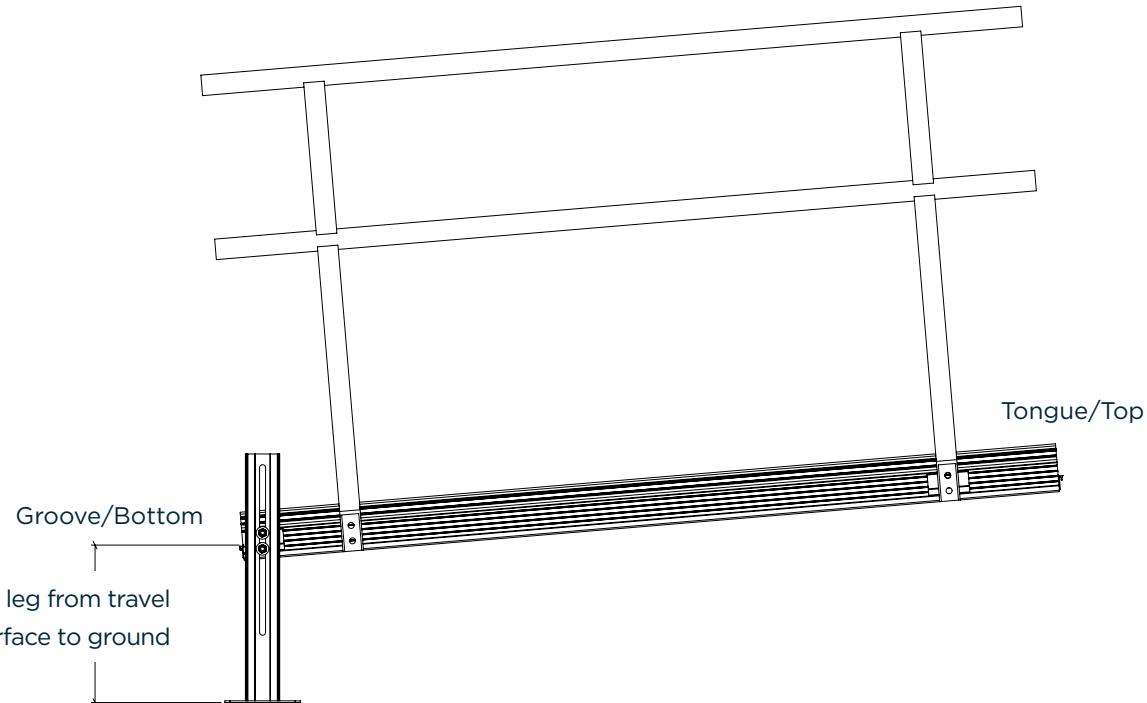


image 21

**18.3.4.** Measure the height that the legs will be set to, from the top of the section to the ground or Celebration Footer Pad™.



#### TIPS AND TRICKS

If the ramp has a slope of  $4.8^\circ/1:12$ , where there is one foot of ramping for every inch of elevation, use the length of the ramp section to calculate the leg height.

If you are installing a 5' ramp section, set your legs 5" shorter than the height of the previous legs. A 3' ramp section will have legs 3" shorter than the previous height, etc.

If the ramp is not being installed at a  $4.8^\circ$  slope, set the legs at roughly the needed height, and use your laser level to find the height that matches your ramp slope. (reference chart on page 30 to find angle of slope)

**18.3.5.** Select the shortest leg that is at least 2" above the measured height.

**18.3.6.** Mount the legs to the ramp, tightening enough to support the weight of the ramp, but without fully tightening the bolts to allow for later adjustments.

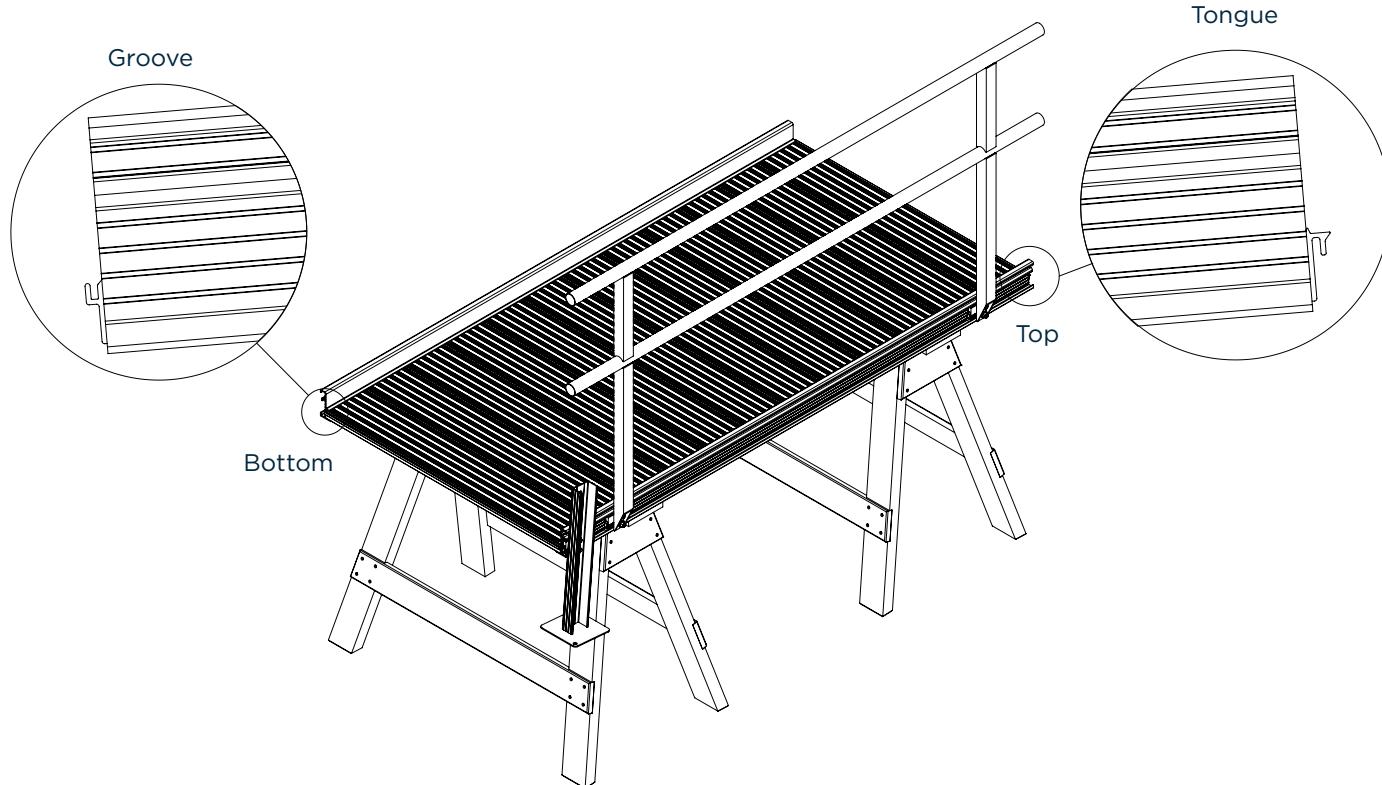


image 22

**Step 2 ▶** Carry the ramp section over to the ramp and hook the tongue into the groove of the last installed ramp or platform section.

**Step 3 ▶** Level the ramp

**18.3.7.** Adjust the legs if needed to ensure the ramp section is level across the width of the ramp and at the correct height and the legs are plumb (vertically straight).



#### TIPS AND TRICKS

Set the leg on one side of the ramp to 4.8°, then level the ramp left-right to 0°.

## 18.4 ▶ SPECIAL PLATFORM CONFIGURATIONS

These platform configurations are installed following the same general steps of a platform installation.

### Switchback Platforms

- The planking will change directions on a switchback platform.
- 5'x8' switchback platforms are composed of a 4'x5' platform and then a 5'x4' platform.
- Use a switchback bracket to install a leg on the inside corner of the switchback platform.

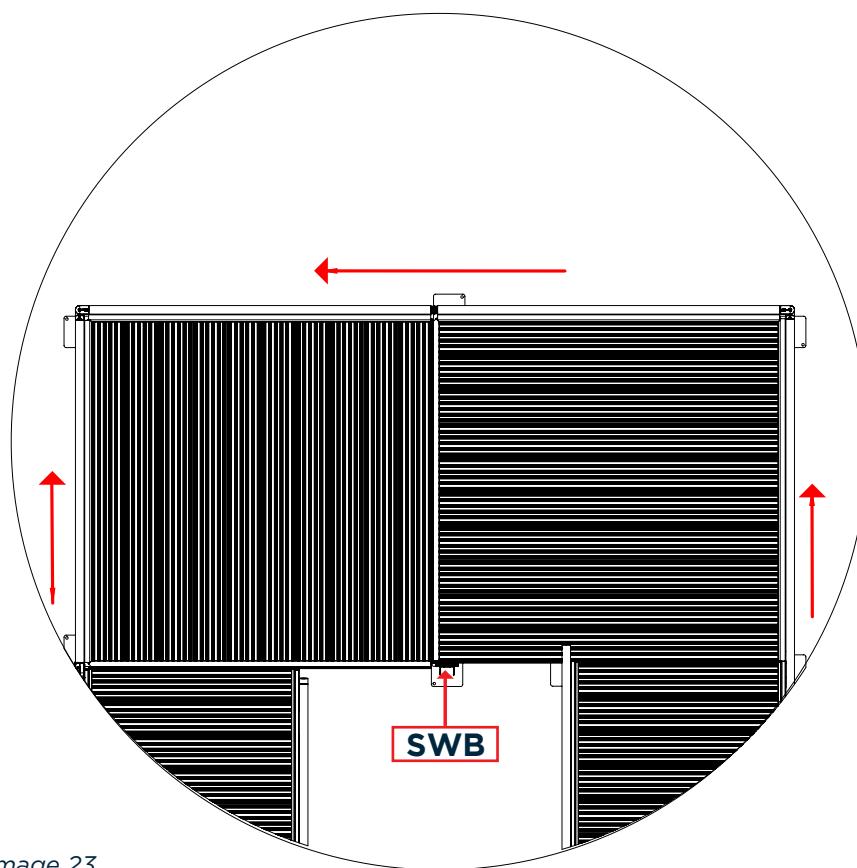


image 23

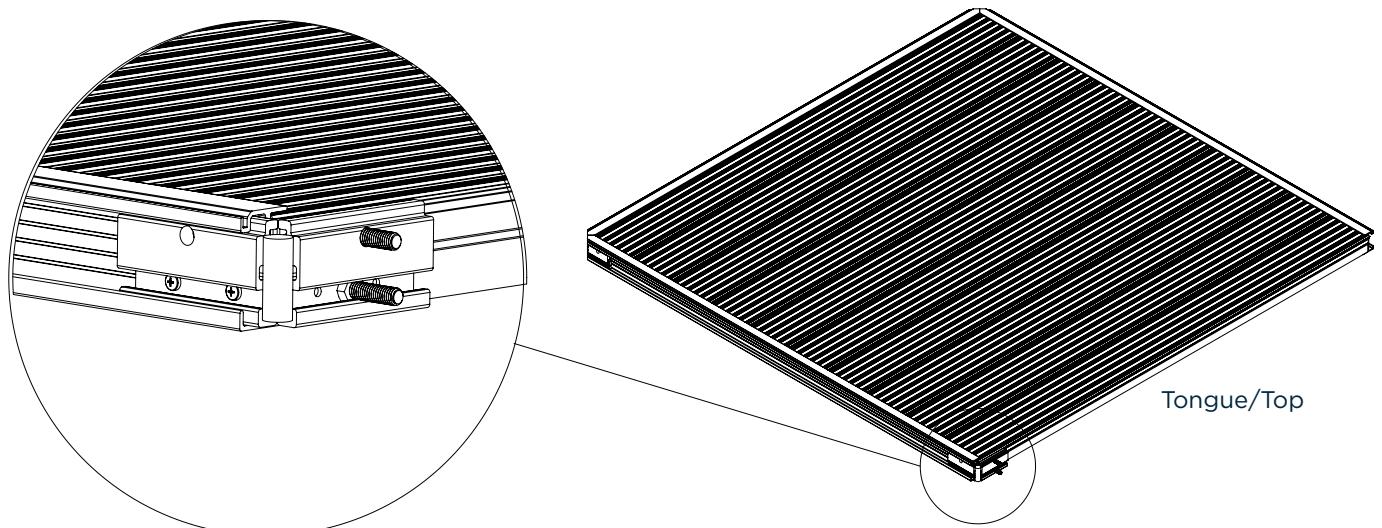


#### TIPS AND TRICKS

For any questions on leg placement, please reference pages 46 and 47.

#### **SWB** SWITCHBACK BRACKET

- 18.4.1.** Following the directions of **section 18.2**, install the first platform of the switchback platform.
- 18.4.2.** Insert two (2) 2/8" x 16 x 1 1/4" Hex Head Bolts into the switchback bracket and slide the bracket into the platform channel.
- 18.4.3.** Using the holes in the switchback bracket as a guide, secure the bracket to the groove side of the platform using driller screws.



*image 24*

- 18.4.4.** Attach the leg to the bolts of the switchback bracket.
- 18.4.5.** Continue with the installation of the next platform.

## Rest Platform

Rest platforms should be 4'x5' or 5'x5', allowing a ramp user to rest during ramp runs over 30'. The platform can be installed centered between the ramp runs or flush with one side. If the platform is installed flush with one side, as pictured below, use 12 elbows for the handrail connections between the rest platform and ramp. If the rest platform is centered, use 16 elbows.

The rest platform looks and functions best when installed in the middle of the ramp run, when possible (ex. If the ramp run is 35' long, place the rest platform at the 20' point, rather than at 30').

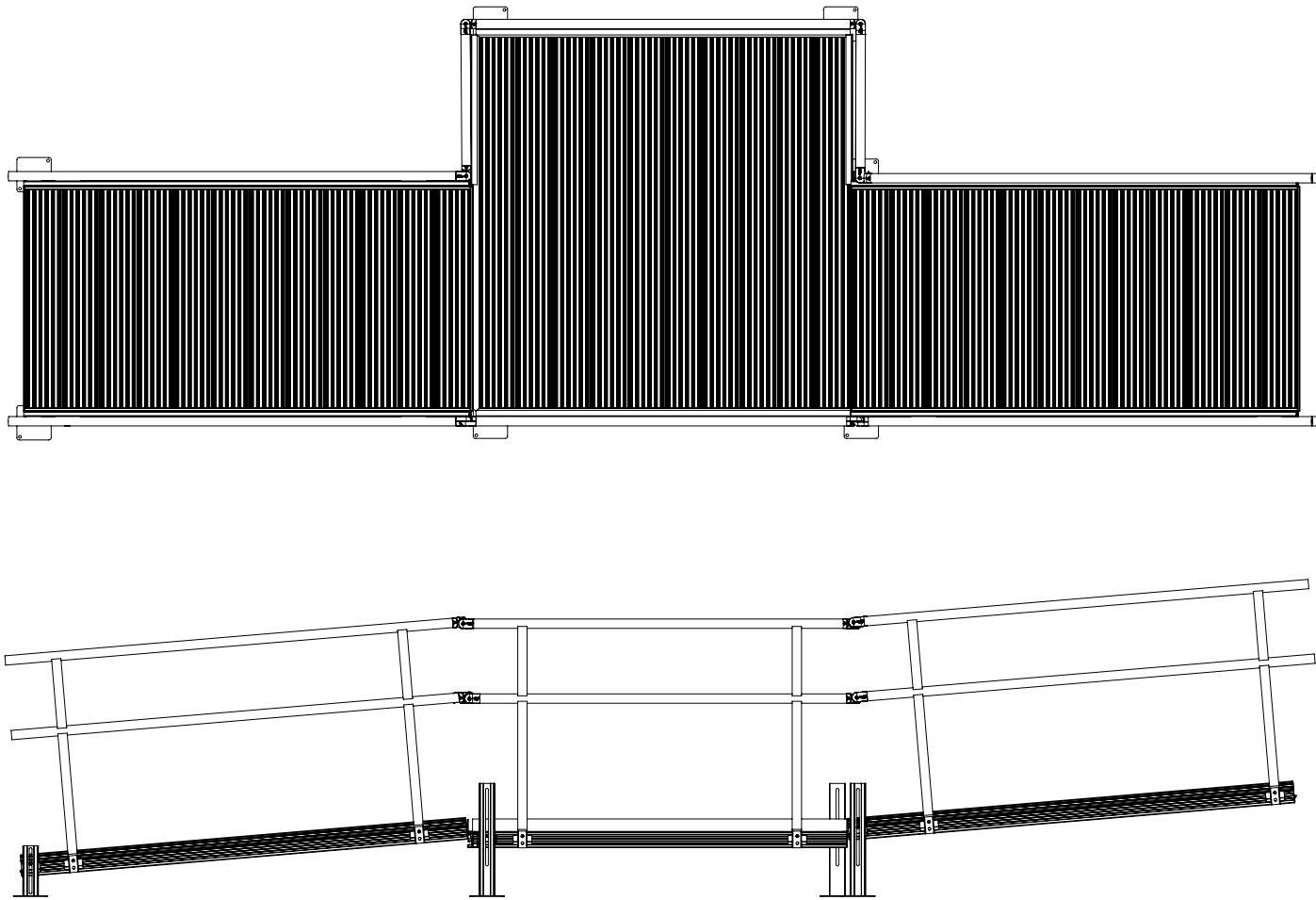


image 25

## 18.5 ▶ INSTALLING A T-POST

**18.5.1.** Add a universal bracket for the T-Post when starting the platform assembly.

**18.5.2.** You may need to cut the T-Post railings during the handrail installation.

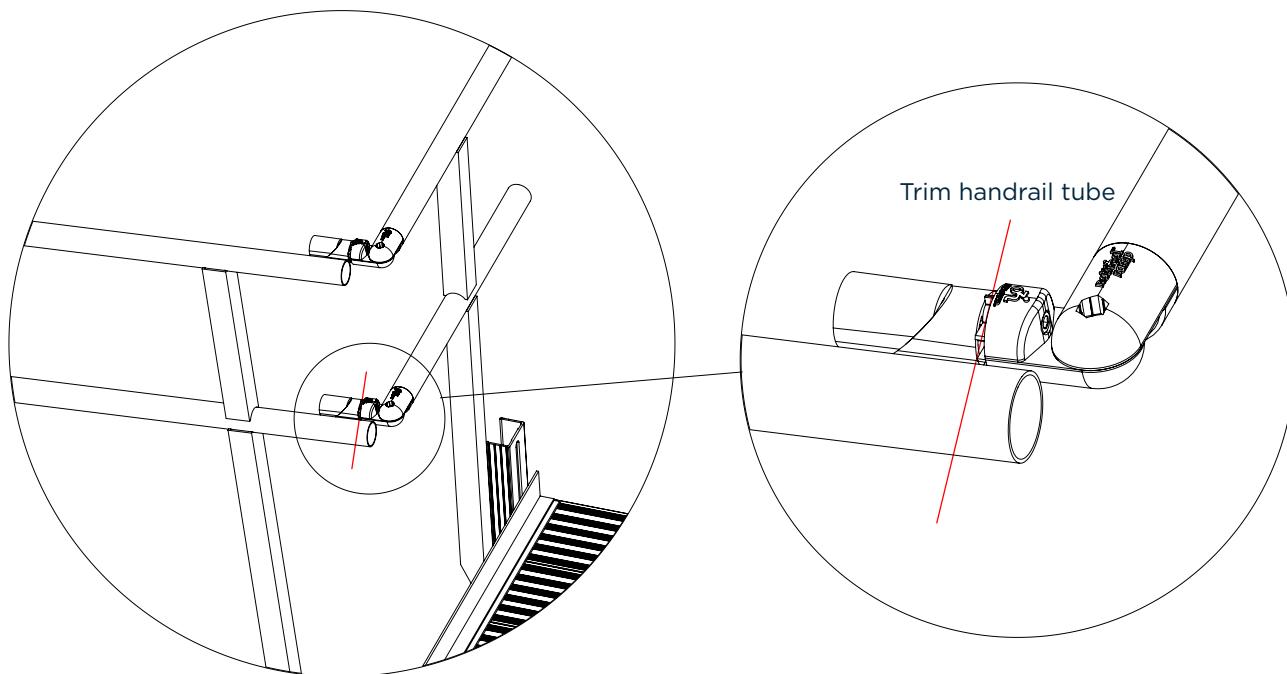


image 26

**18.5.3.** Add round end caps to the inside of the T-Post facing the door.

## 18.6 ▶ LAST RAMP SECTION WITH BTP

**18.6.1.** Place the section upright on sawhorses, with the tongue side facing forwards. Slide the BTP into the groove end of the section.

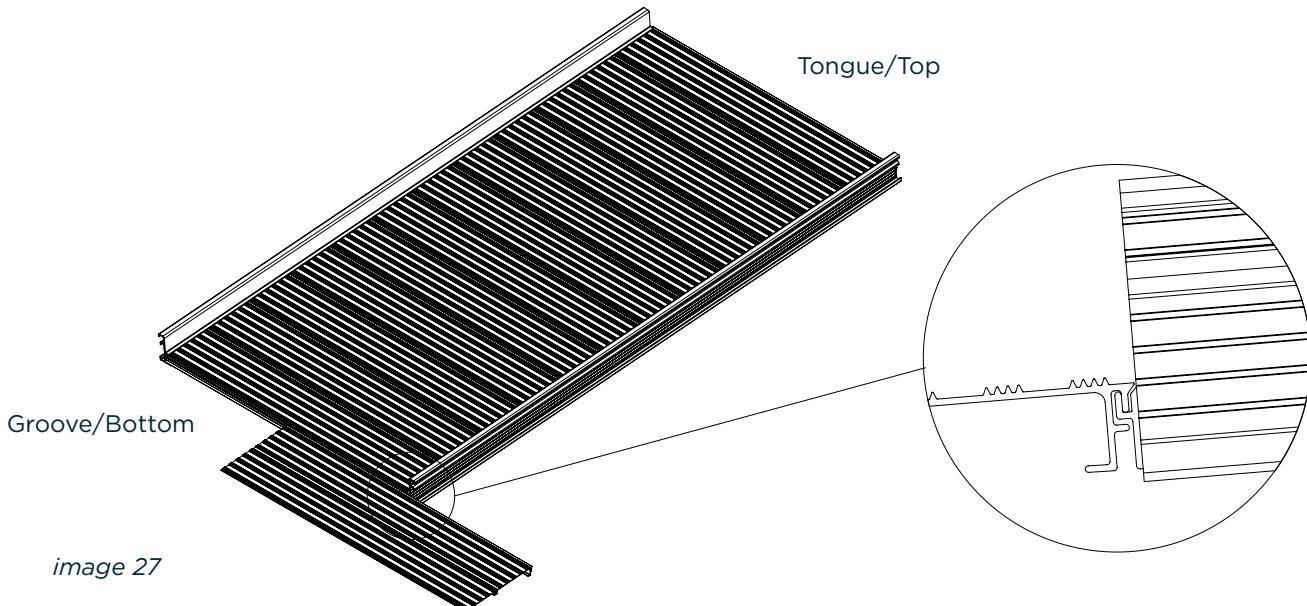


image 27

**18.6.2.** Attach universal brackets and bolts for the two sets of handrails needed for this final section.



#### TIPS AND TRICKS

Legs are not needed unless there is a cross slope requiring a leg on one side to level the ramp section across the width.

**18.6.3.** Mount the handrails, hand-tightening the bolts to allow for later adjustments.

**18.6.4.** Carry the ramp section with the BTP attached over to the ramp and hook the tongue into the groove of the last installed ramp or platform section.

**18.6.5.** Using a level, make sure the ramp section is level across the ramp and at the correct slope. Make sure the BTP is fully supported and firmly on the ground across its width.

## 18.7 ▶ FINISHING THE RAMP

Check ramp components are correctly placed before final adjustments.

**Step 1 ▶ Confirm the pitch is correct with a laser level, and use a string to check that the slope is consistent within ramp runs.**

**18.7.1.** Stretch the string from the top of the first ramp section to the bottom of the last ramp section between platforms. The ramp sections should follow the string.

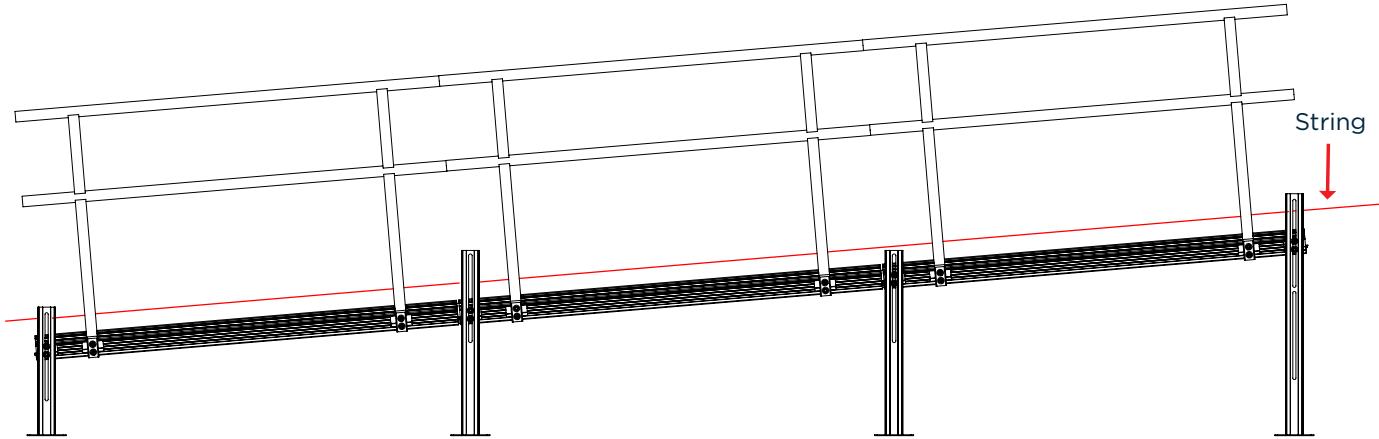


image 28



If slopes are not consistent within ramp runs, the handrails will not align properly.

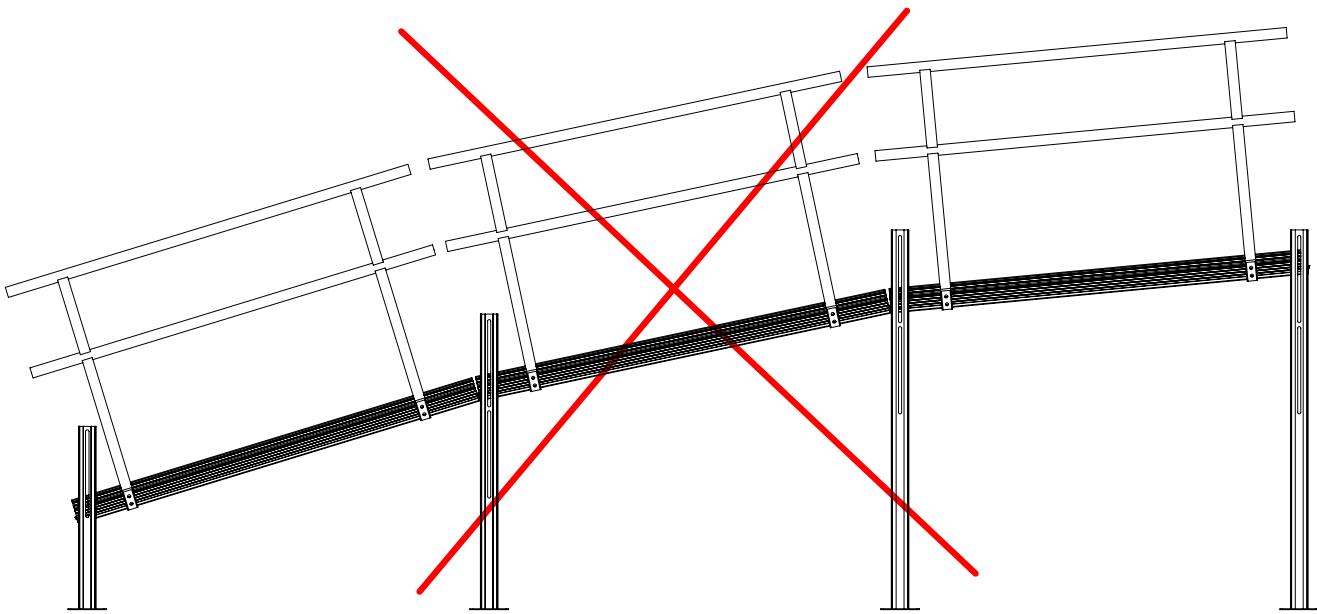
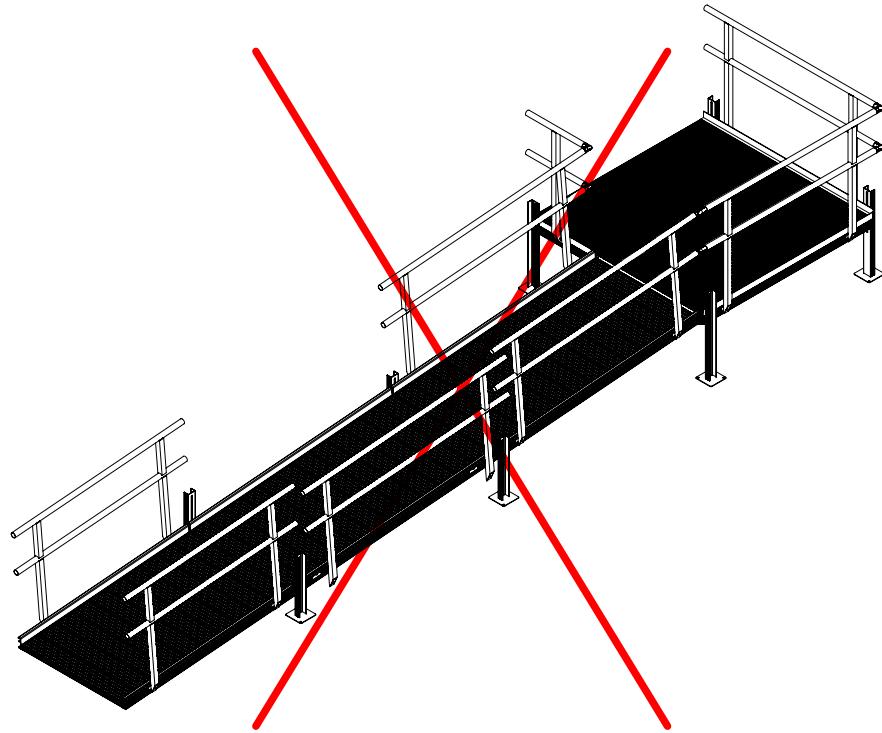


image 29

**Step 2 ▶ After confirming all legs are plumb, tighten all the leg bolts.**

**Step 3 ▶ Starting at the top outside corner of the ramp, working down to the ramp end, connect and tighten the handrails using handrail connectors and elbows.**



Do not have two different people working on setting the handrails from opposite ends, the handrails will not align properly, and the work will have to be redone.

image 30

## Installing Elbows

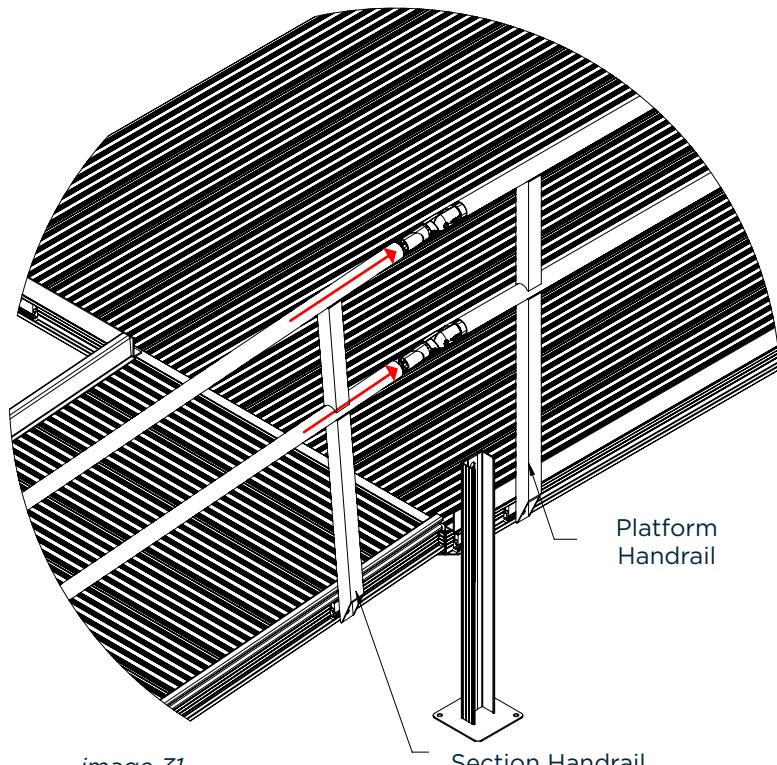
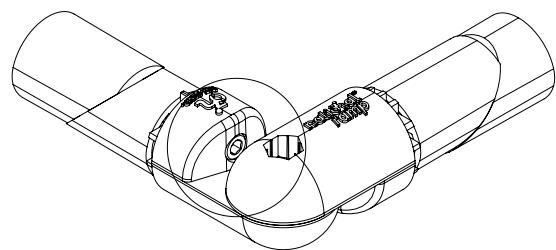
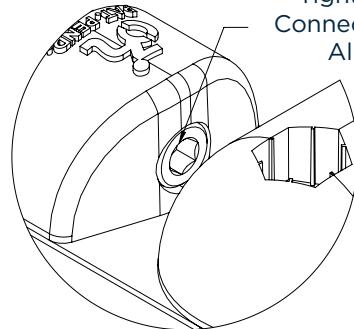


image 31



Tighten Elbow  
Connector with an  
Allen Key



### TIPS AND TRICKS

Elbow joint should be located where the railings would meet if they intersected.

**18.7.2.** Remove the two halves of the elbow from the packaging. One half will have the nut and bolt to join the two halves.

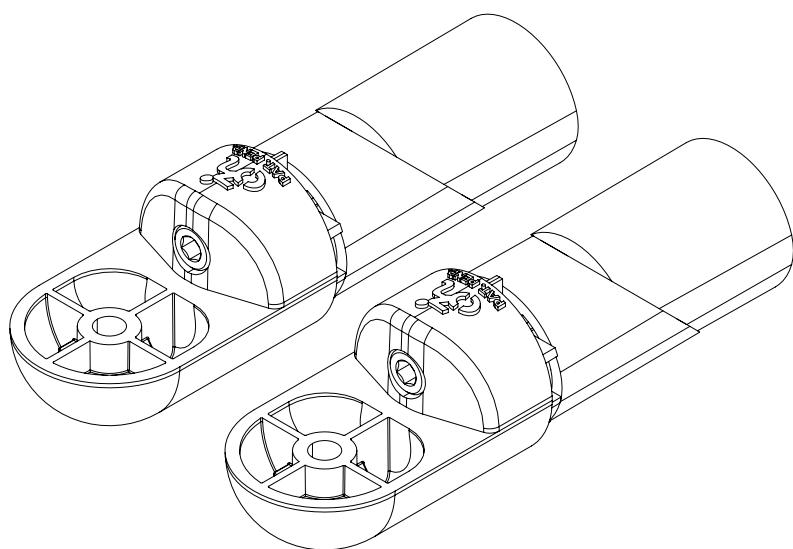
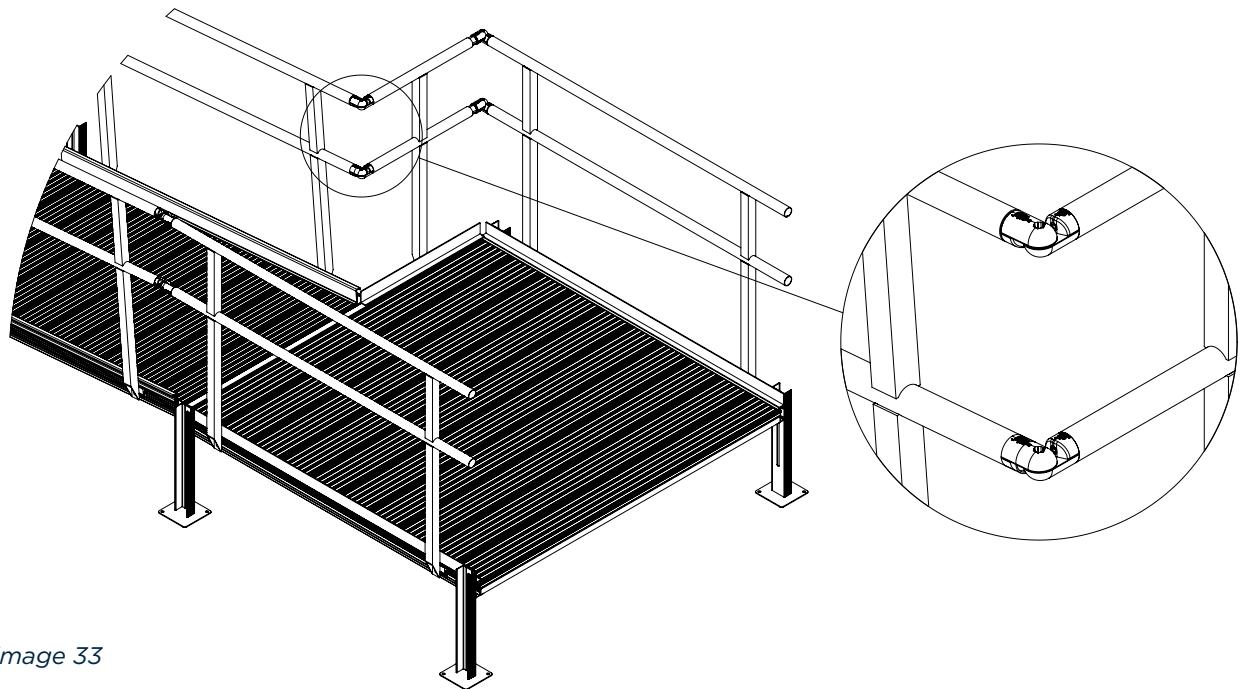
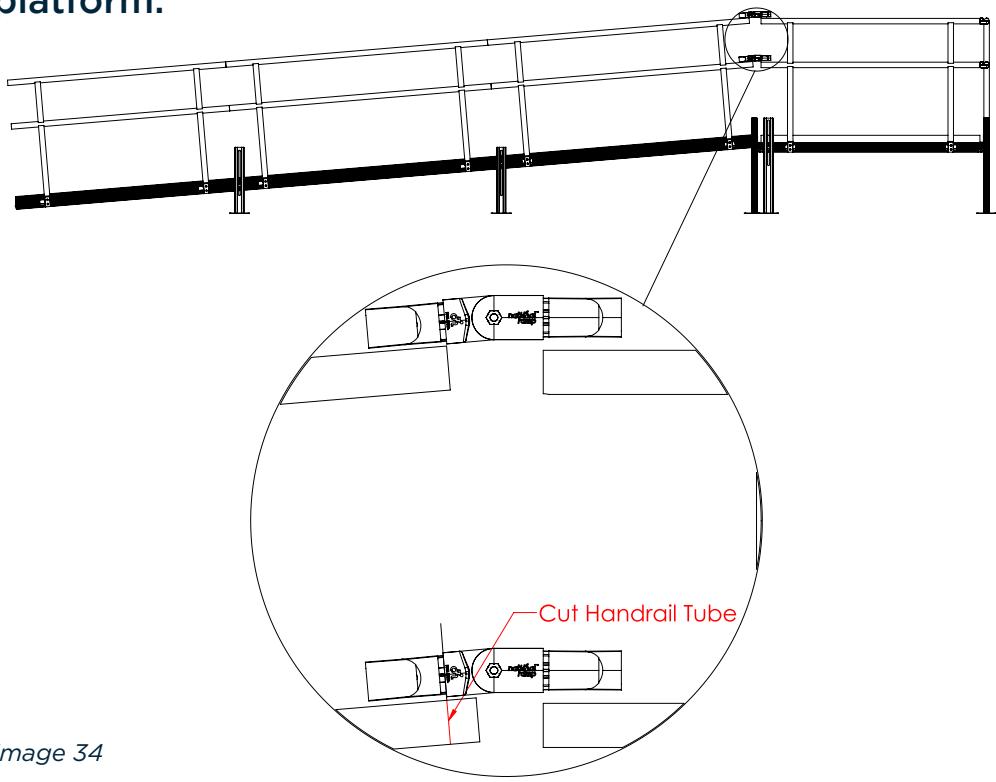


image 32

- 18.7.3.** Insert first half of the elbow into top adjoining handrail.
- 18.7.4.** Lock elbow into handrail by tightening Allen bolt (clockwise).
- 18.7.5.** Repeat for second half of elbow to bottom adjoining handrail.
- 18.7.6.** Check alignment and join two elbow halves using provided bolt and nut.
- 18.7.7.** Once everything is aligned, tighten bolt to join two elbow halves.



**Measure and cut handrails for elbow installation when section is connecting to a platform.**



**18.7.8.** Align the handrails on the seam with the longer handrails up towards the platform. Place the edge of the elbow against the fixed platform handrail and mark the top and lower handrails where they will need to be cut.

**18.7.9.** Cut the handrails using a pipe cutter, clearing any burrs.



#### TIPS AND TRICKS

Measure carefully to reduce the number of cuts, as excessive cuts will increase the chances of burrs.

### Straight handrail connectors

**18.7.10.** Insert the straight connector into the top section handrail and slide the next section handrail up into the handrail connector.

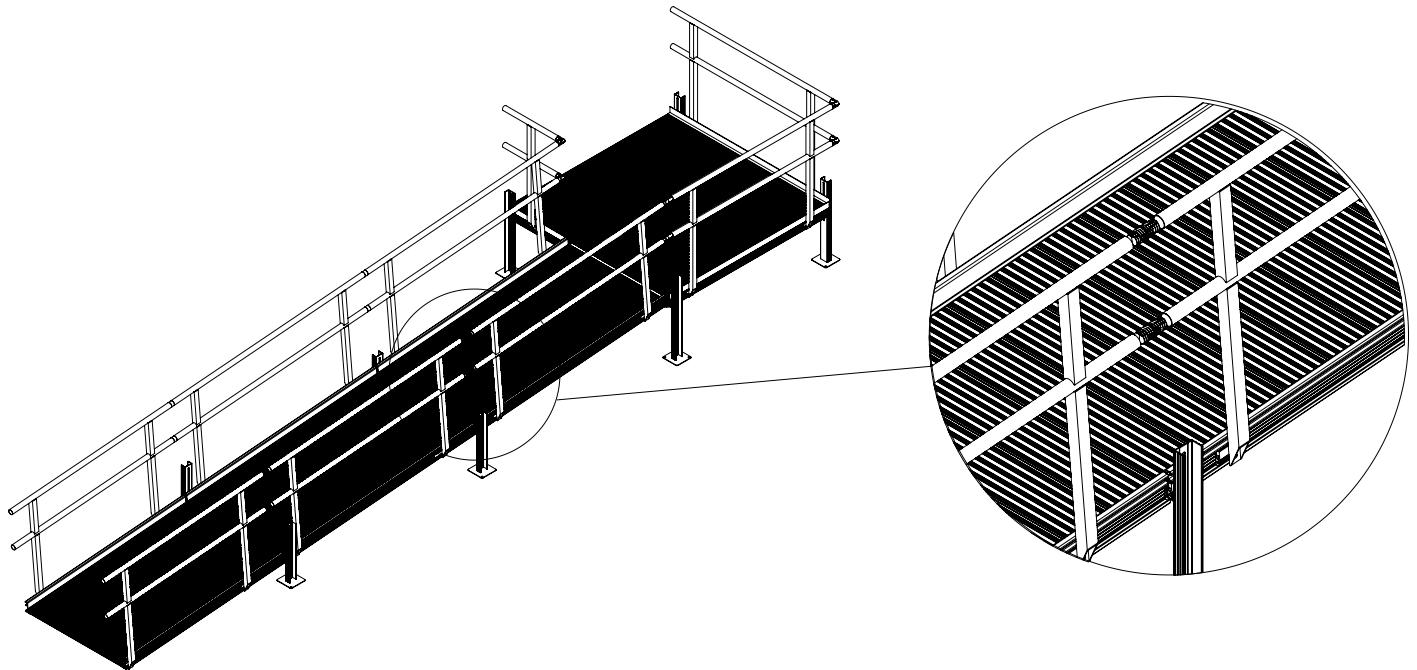


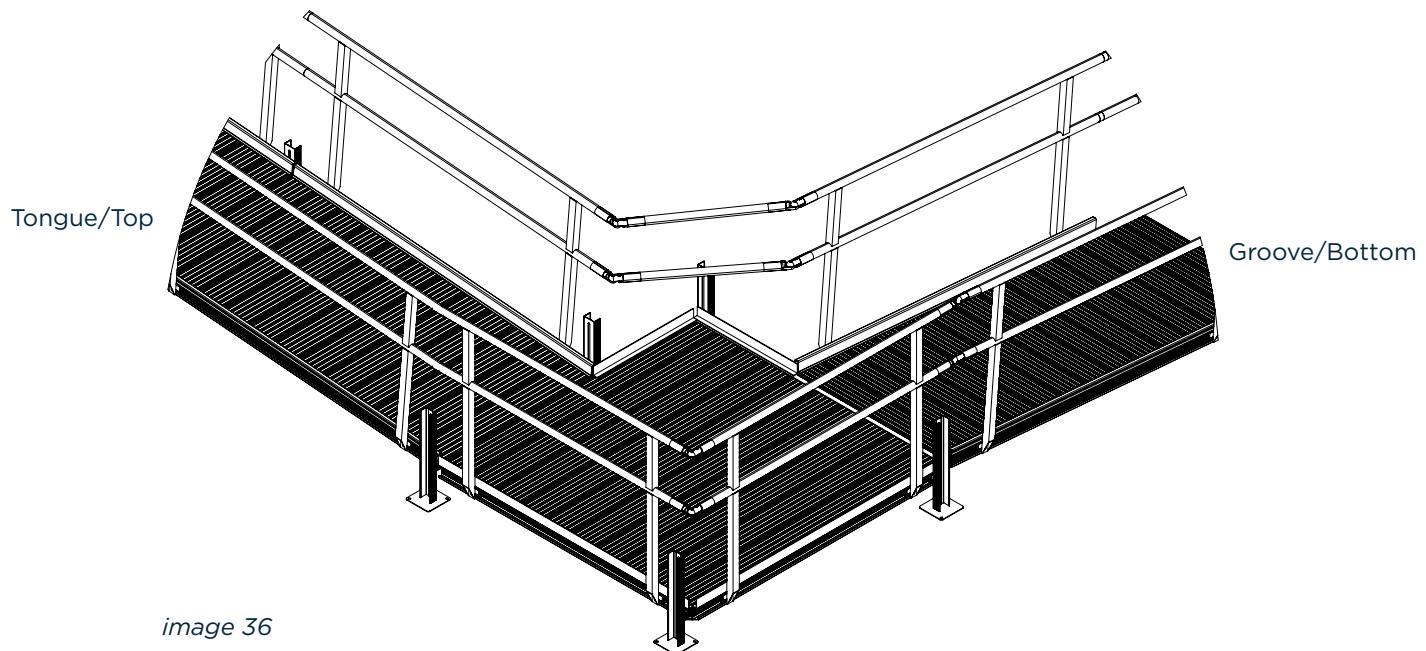
image 35

### Corner handrail options for 5'x5' turn platforms

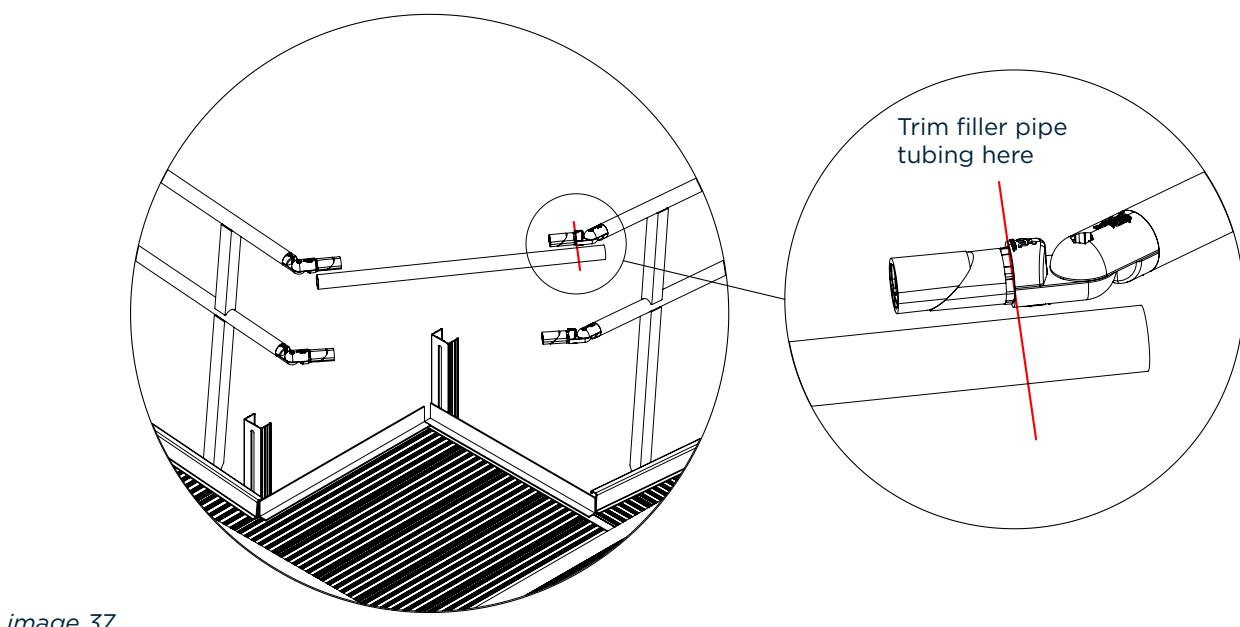
There are two options for installing the handrails on the inside corner of this platform: elbows or a T-post.

The correct installation of either method will result in a secure handrail.

### 18.7.11. Option 1 ▶ Diagonal railing using elbows



- 18.7.11.1. Line up a 4' level on the end of each ramp section vertically, making sure it is plumb, and make cut marks, on the top and bottom of each handrail.
- 18.7.11.2. Cut the handrails using the pipe cutter, clearing any burrs.
- 18.7.11.3. Attach the elbows to both handrails and point the loose ends towards each other.
- 18.7.11.4. Line up filler pipe with the elbow on one side, scoring the cut mark on the other side. Repeat this for the lower handrail.
- 18.7.11.5. Cut the pieces of filler pipe and attach it between the handrails.



### 18.7.12. Option 2 ▶ T-Post

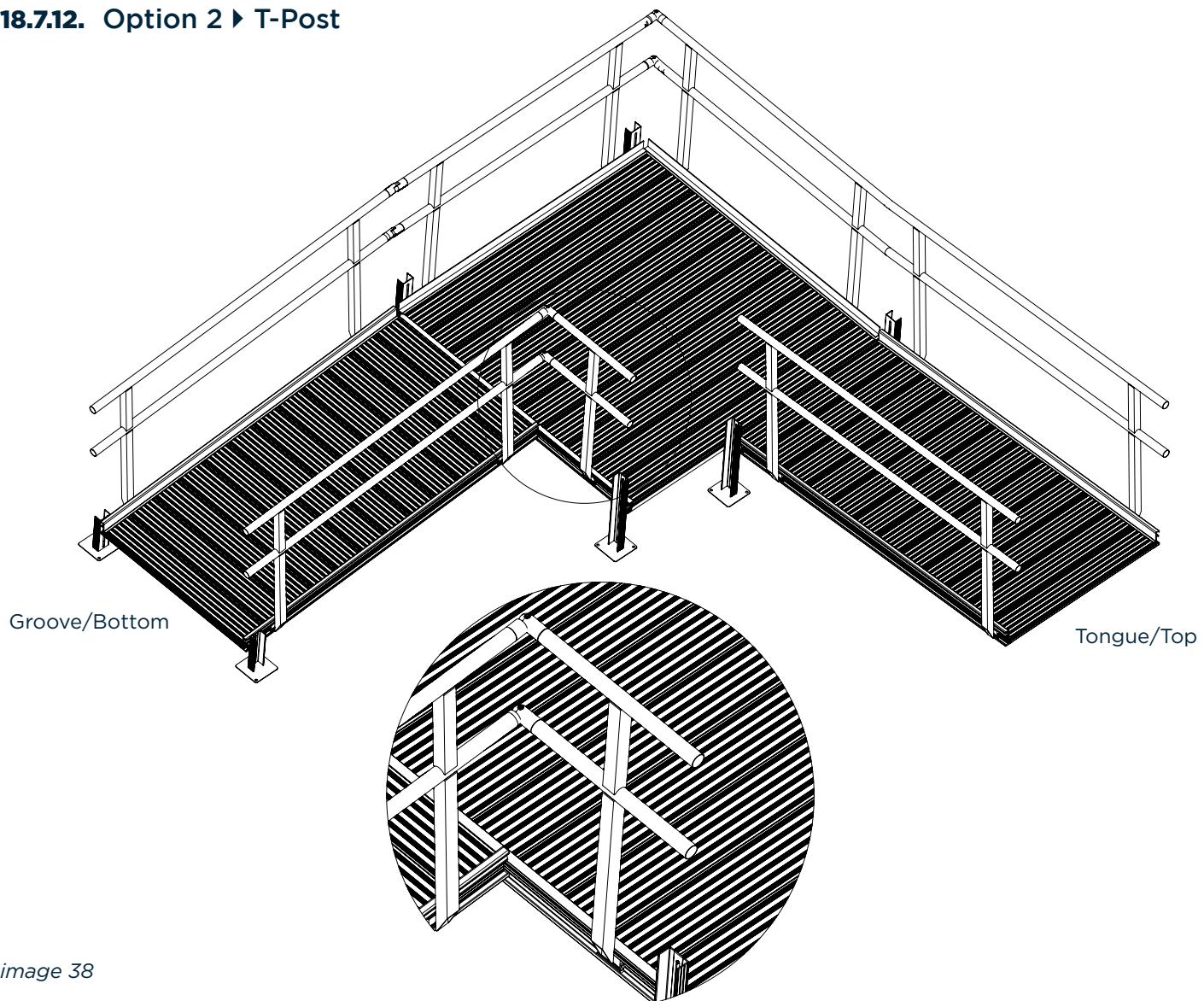


image 38

**18.7.12.1.** Install the vertical support of the T-Post as close to the corner as possible. Use a level to ensure the T-post is plumb.

**18.7.12.2.** Starting with the inside corner of the T-post, insert elbows into the ramp handrails, and measure where the T-post will need to be cut.

**18.7.12.3.** Cut the handrails using the pipe cutter and connect the elbows after clearing any burrs.

**18.7.12.4.** Insert elbows on the outside corner of the T-Post and ramp handrails, and measure filler pipe to fit between the two elbows, using a right angle or triangle to make sure the railings will be at 90°.

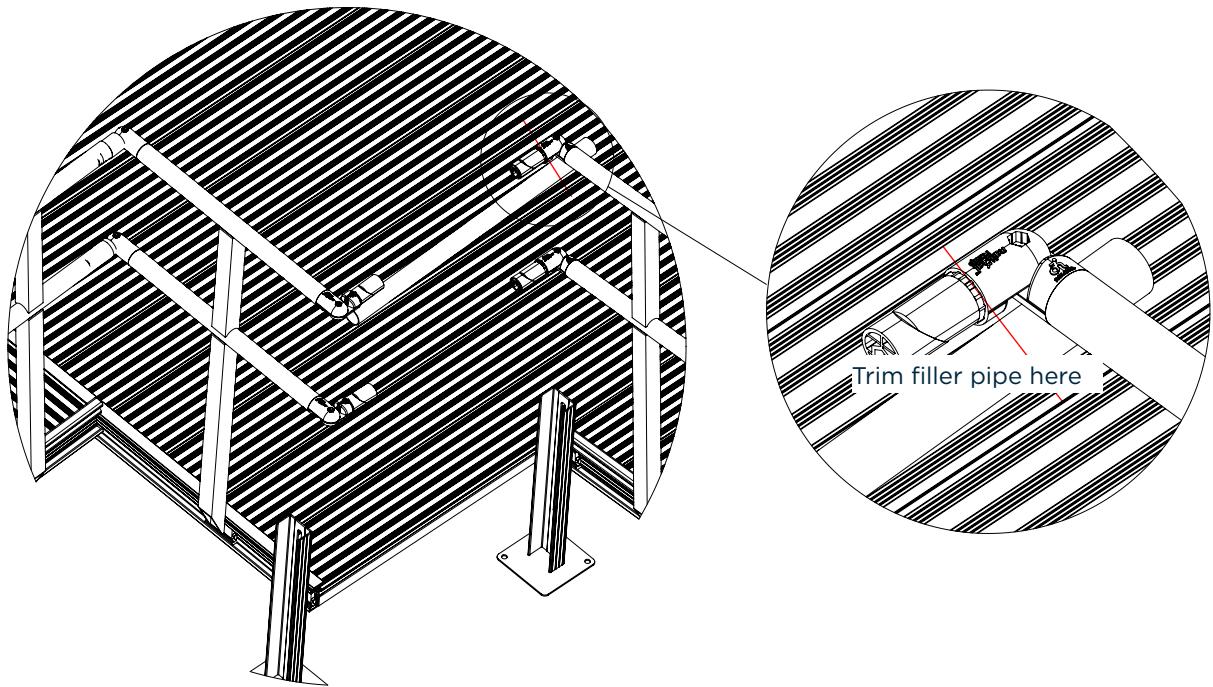


image 39

**18.7.12.5.** Cut the handrails using the pipe cutter and connect the elbows after clearing any burrs.

#### Step 4 ▶ Mount end loops

**18.7.13.** Insert the metal rail connector into the top and bottom of each handrail end, with the set screw facing the ground.

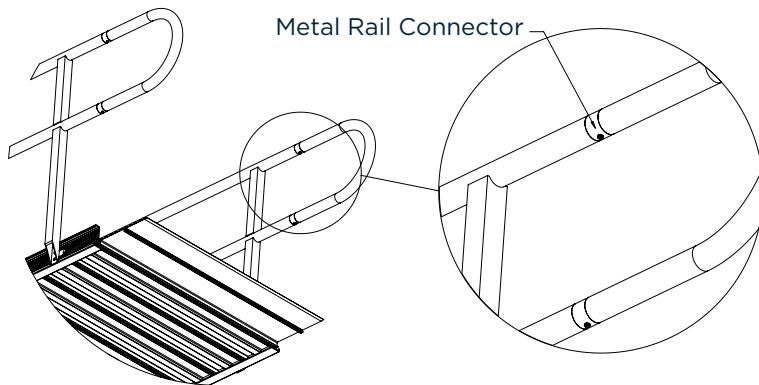
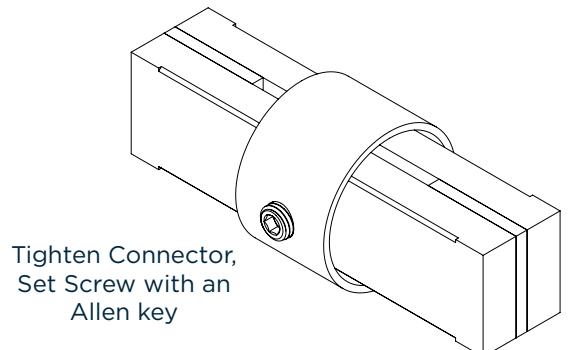


image 40



\*NOTE: Always install connector with set screw facing ground

**18.7.14.** Fit the end loops onto the other end of the metal rail connectors.

**18.7.15.** Make sure the connector and handrail are aligned to prevent sharp edges before tightening with an Allen key.



## TIPS AND TRICKS

End Loops Instead of Cutting Handrails

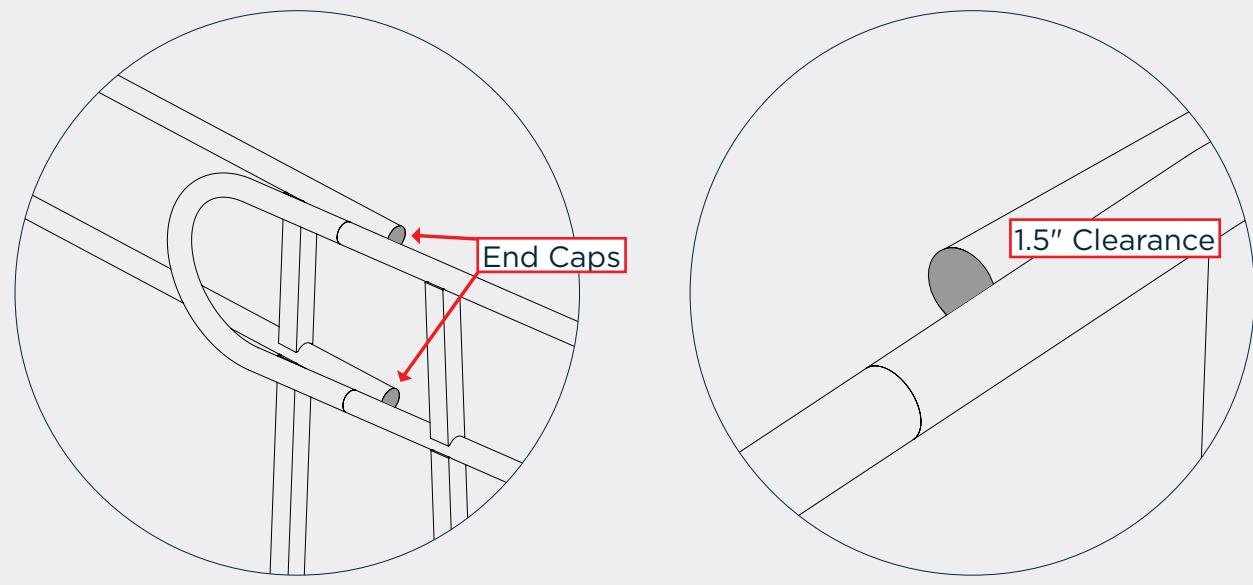
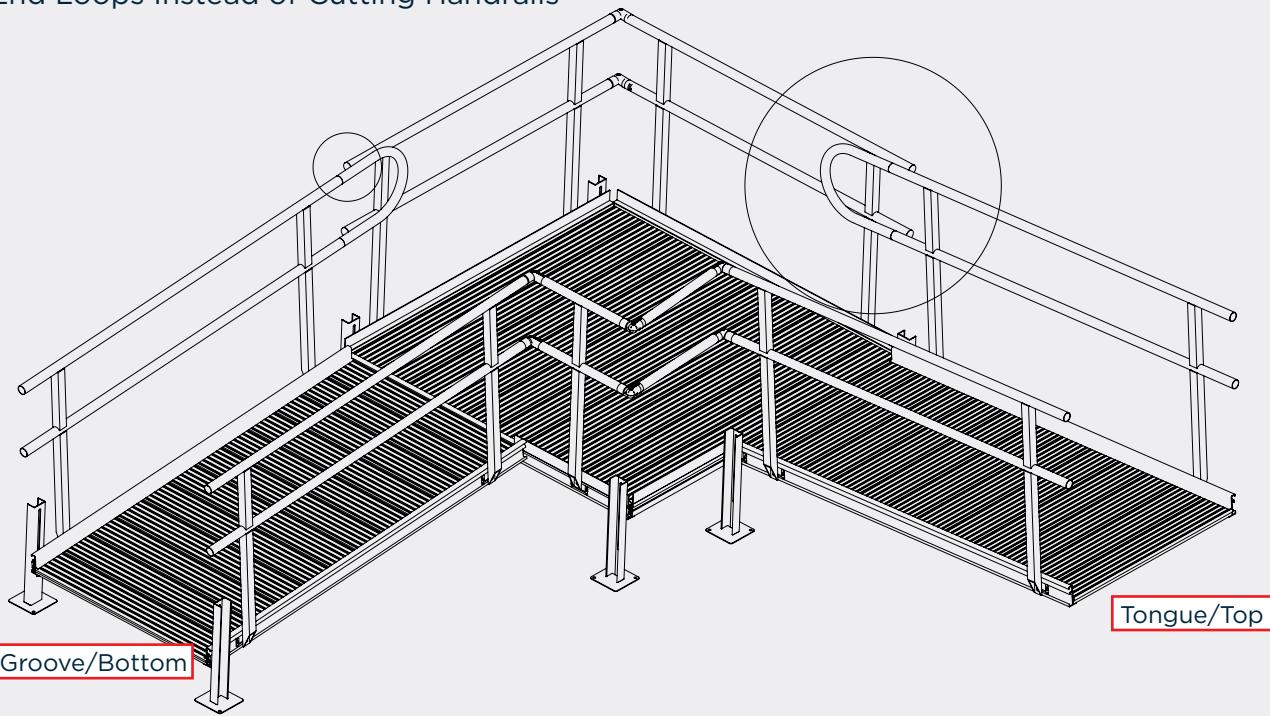
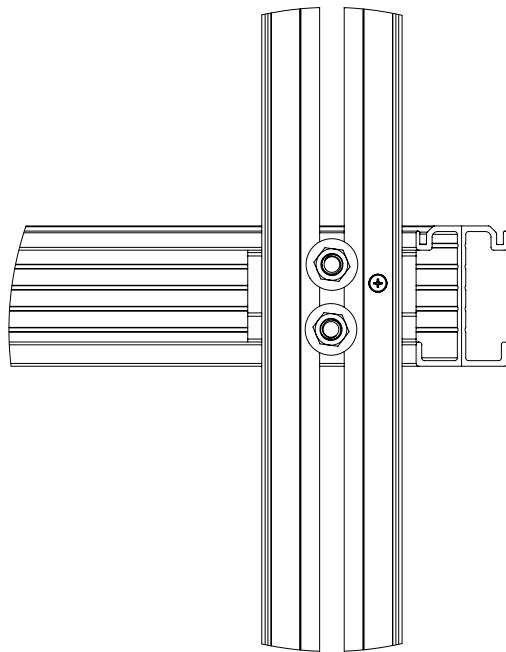


image 41

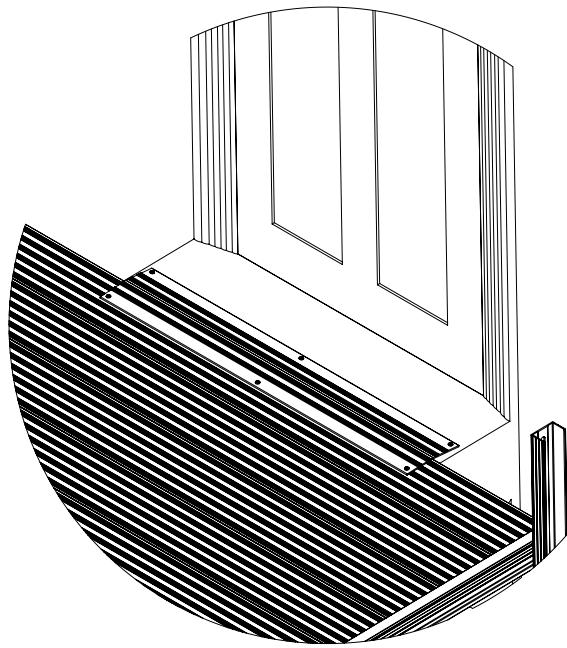
In instances where it is preferred that the handrails are not cut (for instance, when the ramp is being rented) end loops may be used to create a continuous handrail where platforms and ramp sections meet. For code compliance, there must be 1.5" of clearance between the railings.

**18.7.16.** Predrill and place driller screws into each leg to lock into place. Ensure flange nut is tight to secure leg.



*image 42*

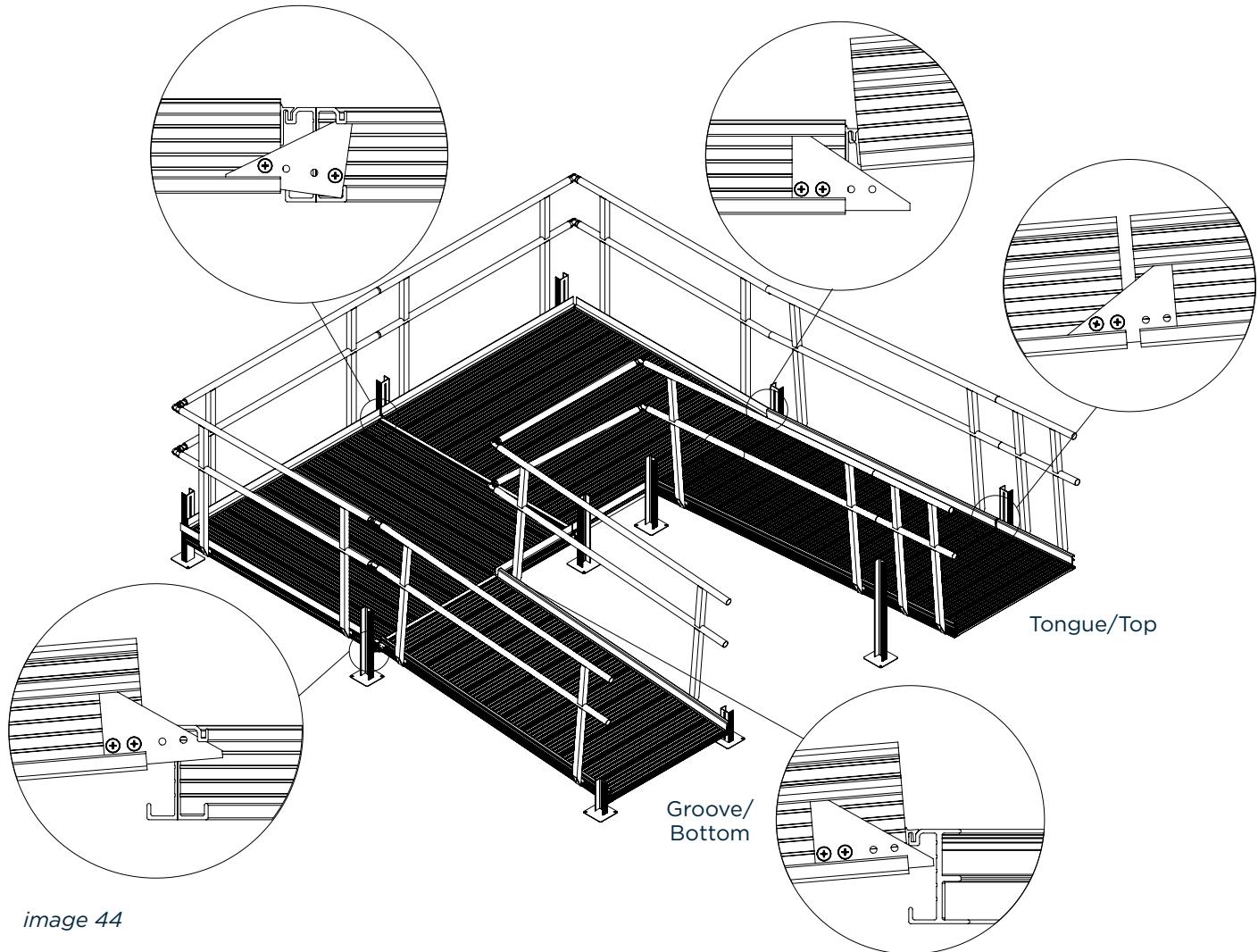
**18.7.17.** Center TTP on top of the starting ramp section or platform and the door threshold or porch, securing with driller screws.



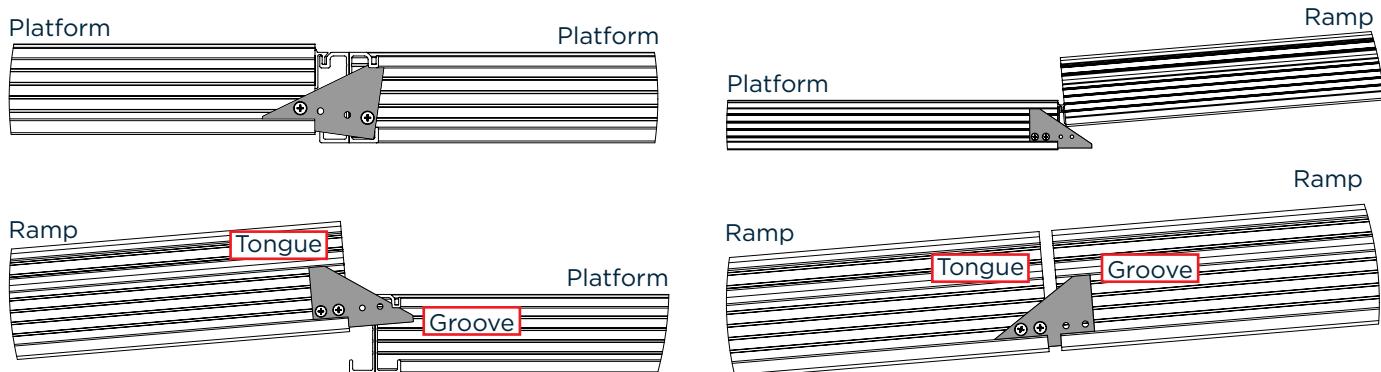
*image 43*

## Step 5 ▶ Install all Ramp and Platform Brackets.

National Ramp requires installing all Ramp and Platform Brackets to ensure the safety and security of the ramp system.



Use the below chart to determine how to position the bracket and which holes to drill for each configuration.



**18.7.18.** Orient the bracket according to the configuration installed, taking special note of the tongue and groove orientation.

**18.7.19.** Rotate the bracket about 30° to insert into the section side channel.

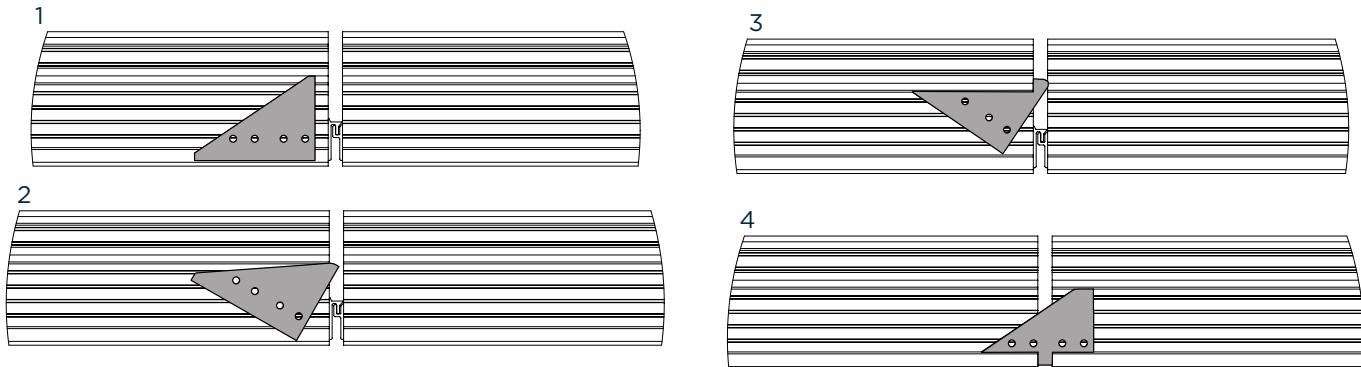


image 46

**18.7.20.** Fasten bracket into side channel using driller screws (pre-drill to ease installation), confirming the bracket holes to be used per the chart.

**18.7.21.** Pull/push up on the tongue side of the section to verify install. A successful install will not allow the tongue to disengage from the groove.

#### Step 6 ▶ Place all leg caps, corner guards and end caps needed.

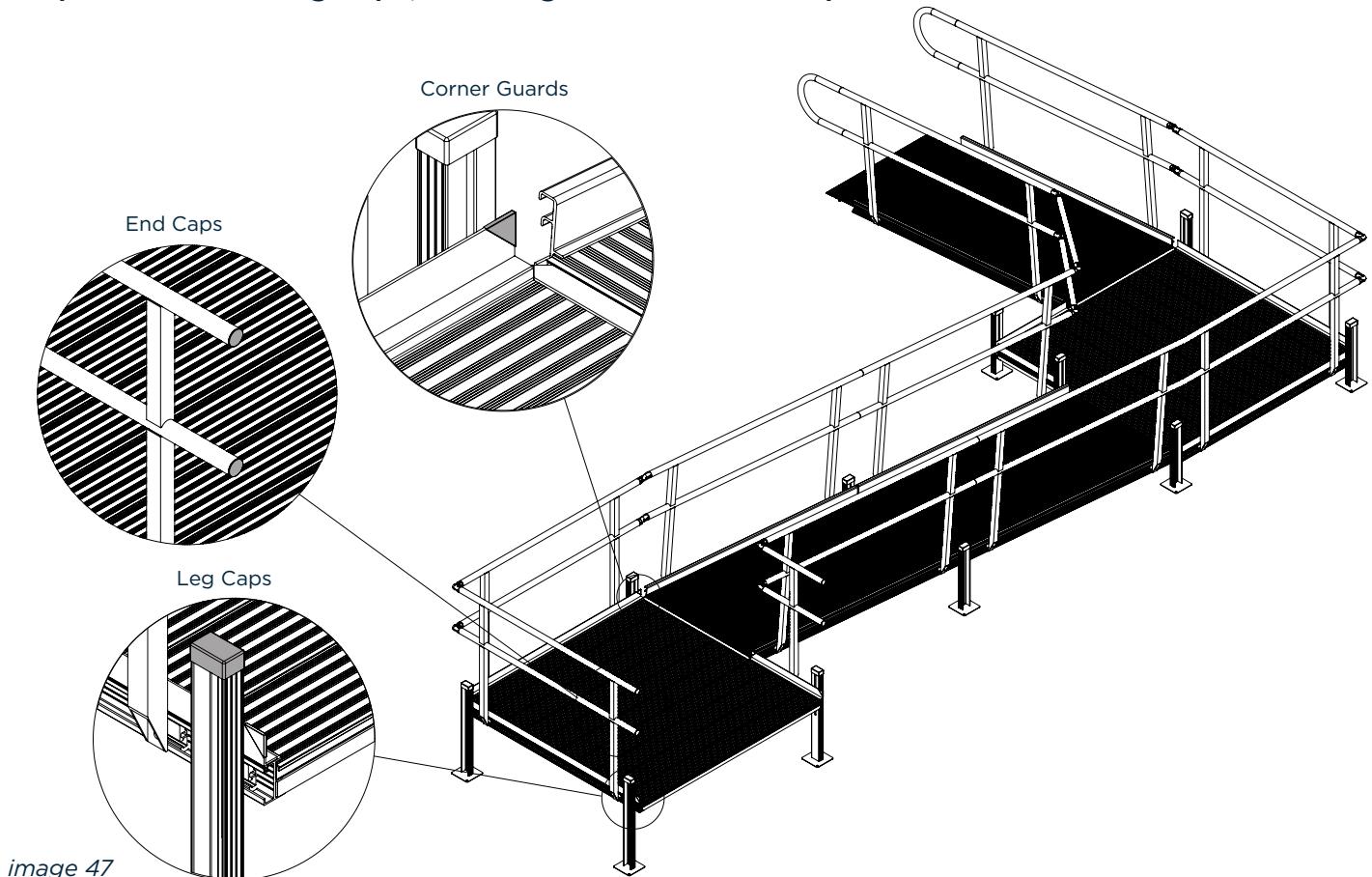


image 47

**Step 7 ▶ Once all components are tightened, walk and jump up and down the ramp to make sure the ramp feels secure. Run your hands across all railings to check for and clear any burrs.**

**Step 8 ▶ Have the ramp user(s) traverse the ramp to make sure they feel comfortable and are happy with the result, before reviewing maintenance and care.**

# 19. Miscellaneous Installation Processes

The following installation instructions are for different optional elements. Your ramp layout may include one or more.

## 19.1 ▶ THRESHOLD RAMPS

Always make sure that threshold ramps are set to provide as seamless a transition as possible over a threshold, while not interfering with the door swing.

### Journey Aluminum Threshold Ramps

#### 19.1.1. Adjustable leg height

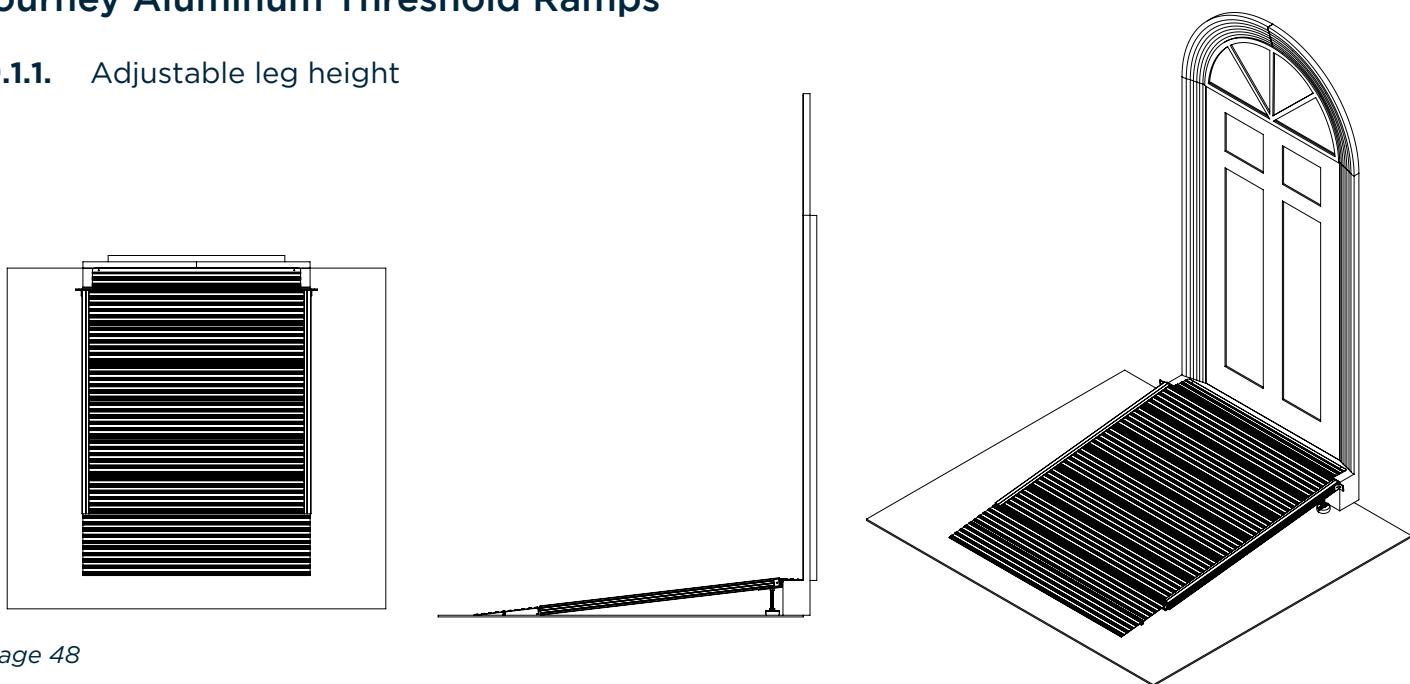


image 48

**19.1.1.1.** Align the threshold against the door. Check that the TTP properly fits at the door and confirm its placement before snapping into place.



The TTP cannot be repositioned and must be cut to be removed once installed to the threshold ramp.

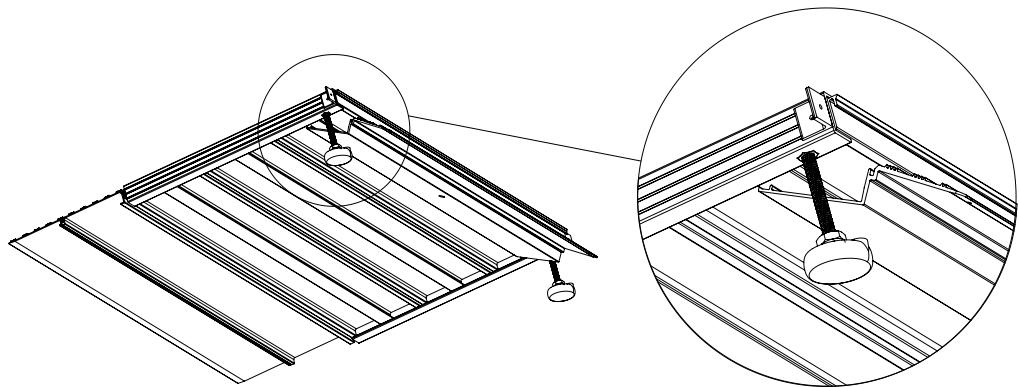


image 49

**19.1.1.2.** If the adjustable leg needs to be cut to achieve the correct height, place the nut past the cut mark. After cutting, remove nut to rethread bolt.

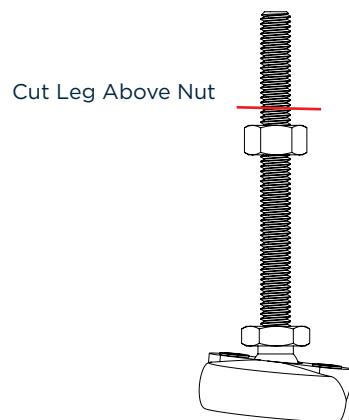


image 50

**19.1.1.3.** The threshold ramp can be affixed to the home by screwing down the TTP with low-profile screws appropriate for the material of the home. If the TTP is not being used, a 90° bracket can be used to connect the threshold to the home.

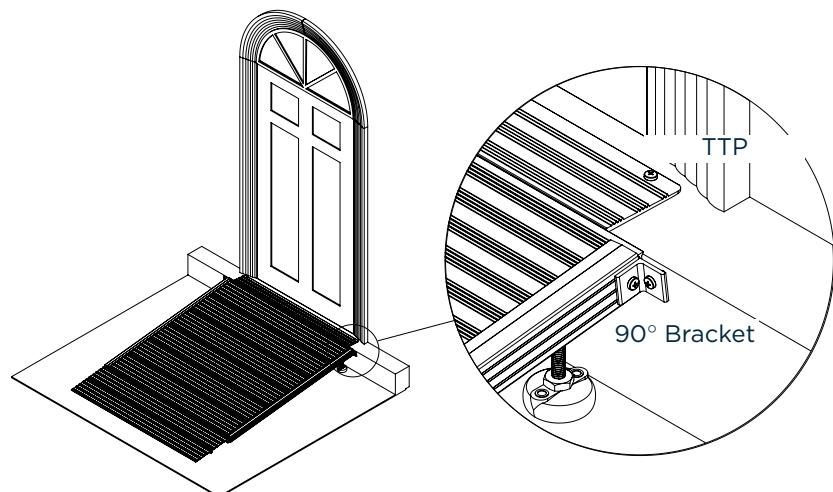


image 51

## 19.1.2. Fixed height

**19.1.2.1.** This threshold ramp can be affixed to the home by using screws through the side tabs of the fixed leg height threshold.

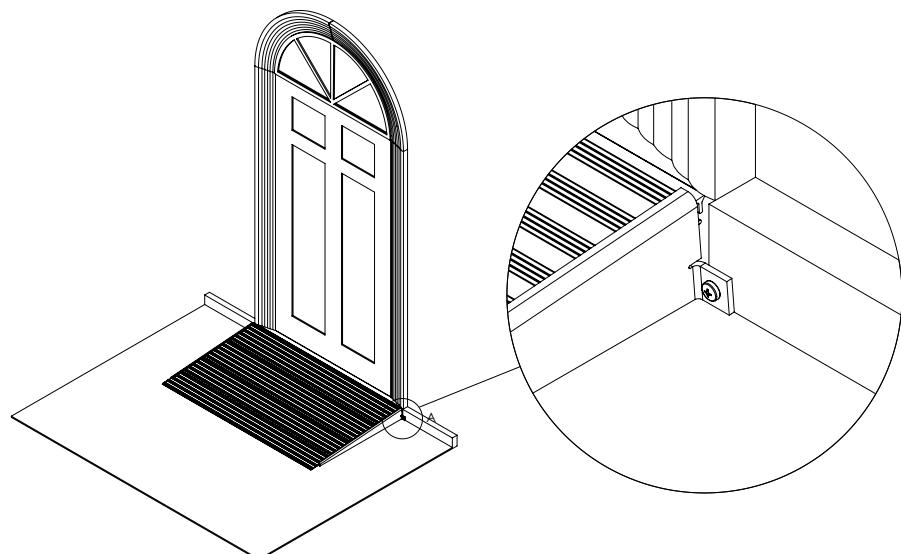


image 52

## Celebration Rubber Threshold Ramp

If needed, the rubber threshold can be trimmed to fit under the door threshold.

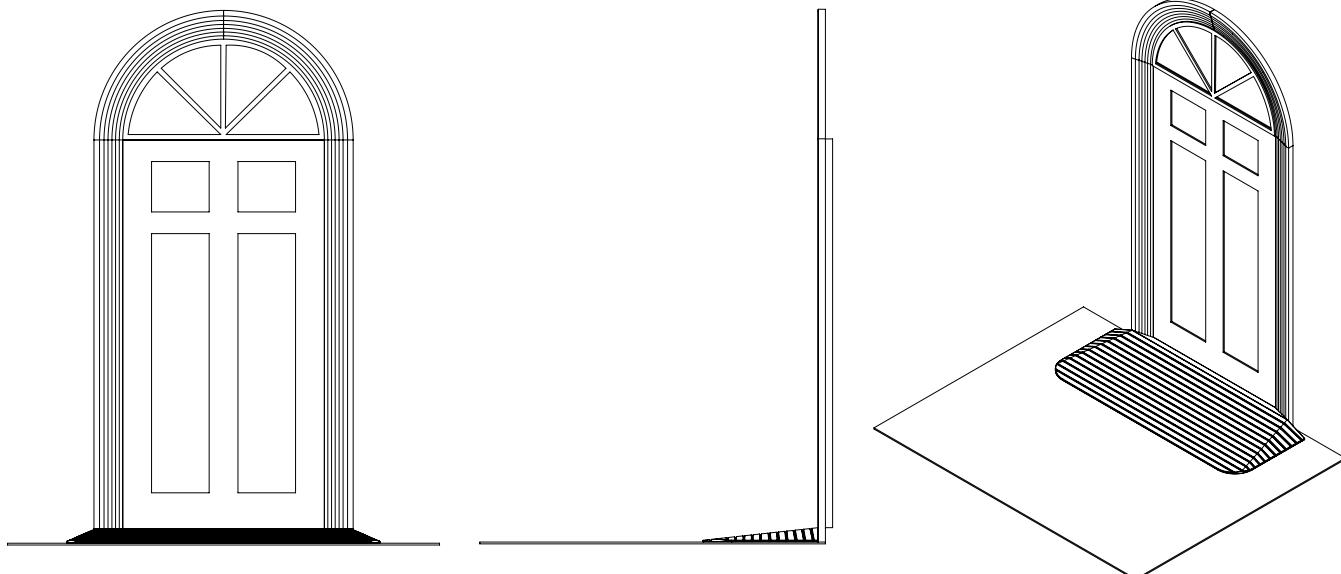


image 53

## 19.2 ▶ LANDING PAD

**19.2.1.** Slide the 60" BTP into the end of the landing pad.

**19.2.2.** Lay the landing pad under the end of the last ramp section, so the ramp BTP is squarely on the landing pad. The landing pad BTP should face the exit direction of the ramp.

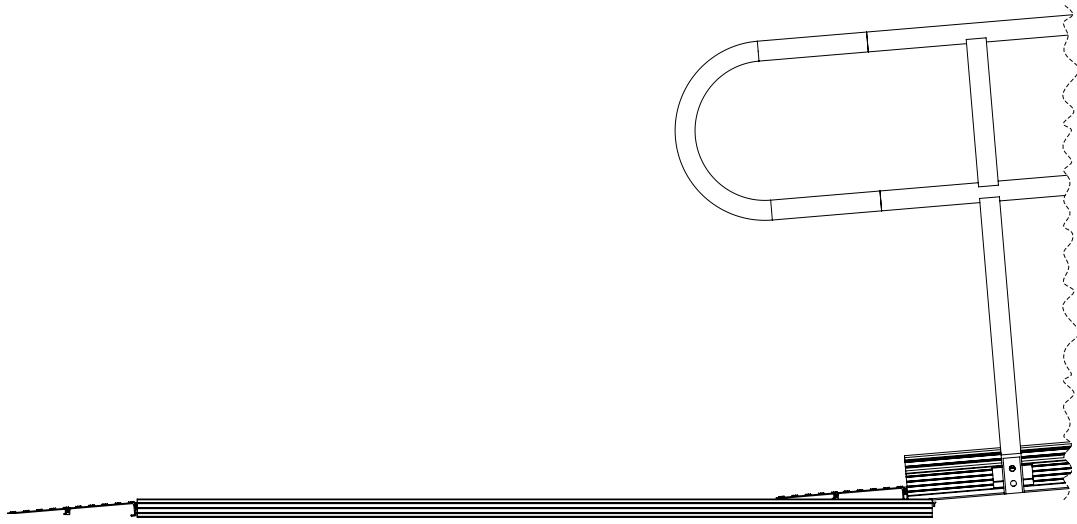


image 54

**19.2.3.** Make sure the landing pad doesn't wobble. Pack dirt or gravel underneath the landing pad if needed to keep it level and supported.

## 19.3 ▶ CROSS BRACING

All ramps and platforms with elevations of 36" and over require cross bracing.

### 19.3.1. Platform cross bracing must be installed on all four sides.

- Total of eight (8) cross braces.
- Two (2) per side for front to back bracing, forming an X on each side.
- Two (2) per side for left-to-right bracing, forming an X on each side.

### 19.3.2. Ramp section cross bracing must be installed on every other ramp section.

- Total of six (6) cross braces.
- One (1) per side for front-to-back bracing, forming a / on each side.
- Two (2) per side for left-to-right bracing, forming an X on each side.

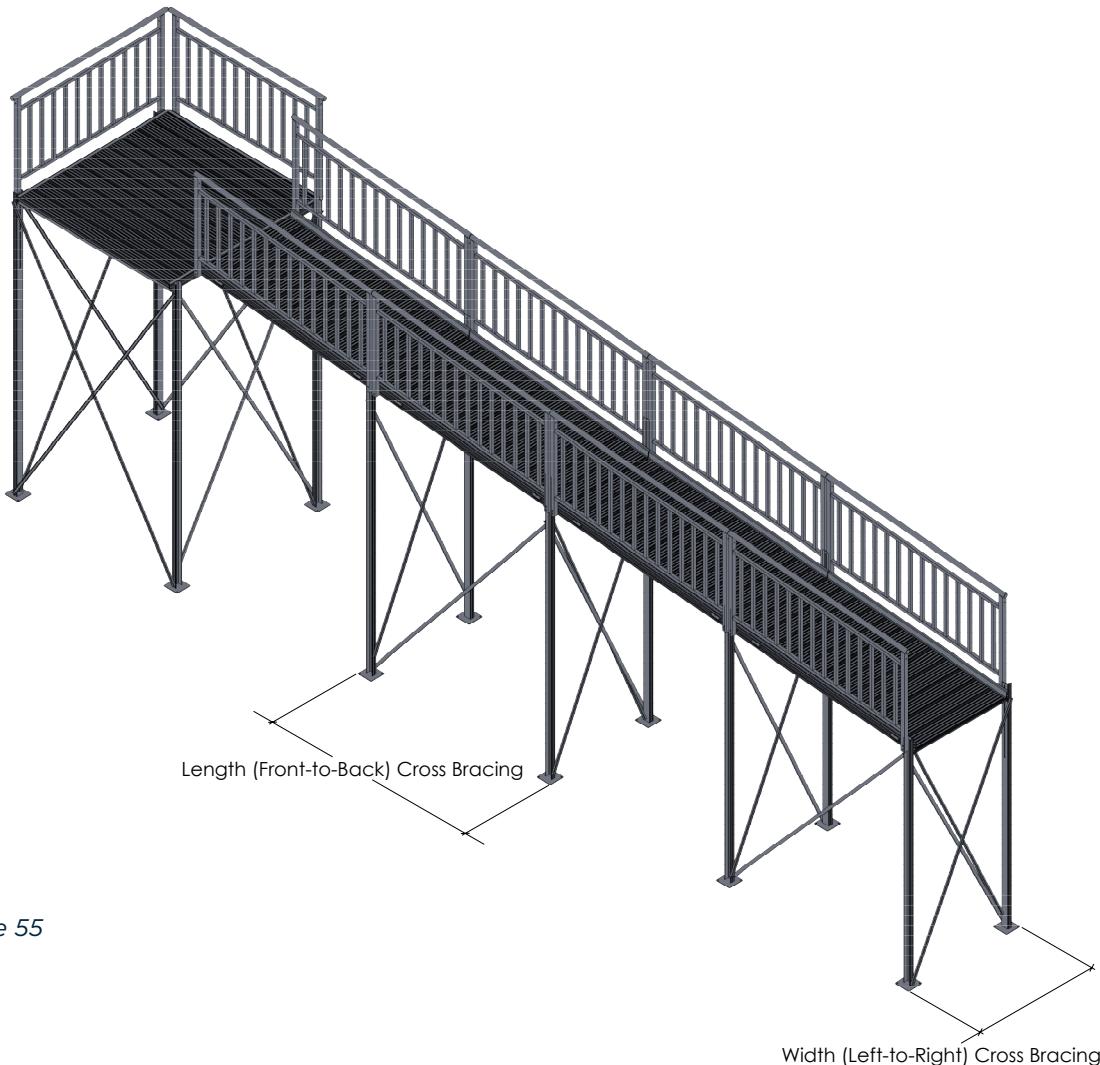


image 55

**19.3.3.** Identify the cross brace length needed using the following cross bracing guide.

Width (Left-to-Right) Cross Bracing

CROSS BRACING LENGTH	36" WIDE RAMP SECTIONS					PLATFORM	
	2' LENGTH	3' LENGTH	4' LENGTH	5' LENGTH	6' LENGTH	48' WIDE	60' WIDE
48"	36"-38" Height (used on all sections to brace left-to-right)					N/A	N/A
72"	39"-71" Height					36"-61" Height	36"-45" Height
96"	72"-98" Height					62"-97" Height	46"-90" Height
120"	99"-115" Height					98"-115" Height	91"-115" Height

Length (Front-to-Back) Cross Bracing

CROSS BRACING LENGTH	36" WIDE RAMP SECTIONS					PLATFORM	
	2' LENGTH	3' LENGTH	4' LENGTH	5' LENGTH	6' LENGTH	48' WIDE	60' WIDE
48"	36"-55" Height	36"-47" Height	N/A	N/A	N/A	N/A	N/A
72"	56"-79" Height	48"-75" Height	36"-67" Height	36"-56" Height	N/A	36"-61" Height	36"-45" Height
96"	80"-104" Height	76"-101" Height	68"-96" Height	57"-89" Height	36"-79" Height	62"-97" Height	46"-90" Height
120"	105"-115" Height	102"-115" Height	97"-115" Height	90"-115" Height	80"-115" Height	98"-115" Height	91"-115" Height

Width (Left-to-Right) Cross Bracing

CROSS BRACING LENGTH	48" WIDE RAMP SECTIONS					PLATFORM	
	2' LENGTH	3' LENGTH	4' LENGTH	5' LENGTH	6' LENGTH	48' WIDE	60' WIDE
48"	N/A					N/A	N/A
72"	36"-61" Height Height (used on all sections to brace left-to-right)					36"-61" Height	36"-45" Height
96"	62"-92" Height					62"-97" Height	46"-90" Height
120"	93"-115" Height					98"-115" Height	91"-115" Height

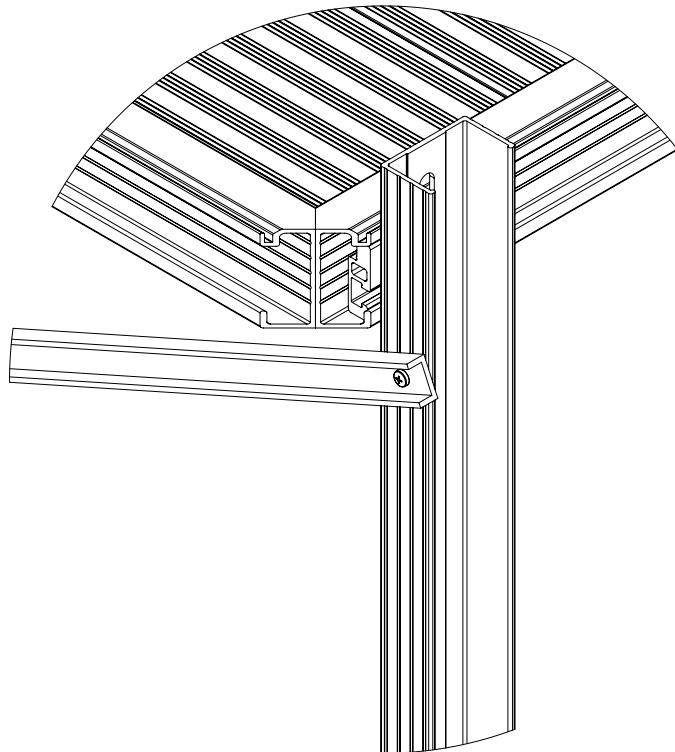
Length (Front-to-Back) Cross Bracing

CROSS BRACING LENGTH	48" WIDE RAMP SECTIONS					PLATFORM	
	2' LENGTH	3' LENGTH	4' LENGTH	5' LENGTH	6' LENGTH	48' WIDE	60' WIDE
48"	36"-55" Height	36"-47" Height	N/A	N/A	N/A	N/A	N/A
72"	56"-79" Height	48"-75" Height	36"-67" Height	36"-56" Height	N/A	36"-61" Height	36"-45" Height
96"	80"-104" Height	76"-101" Height	68"-96" Height	57"-89" Height	36"-79" Height	62"-97" Height	46"-90" Height
120"	105"-115" Height	102"-115" Height	97"-115" Height	90"-115" Height	80"-115" Height	98"-115" Height	91"-115" Height

**19.3.4.** Ensure the legs being braced are plumb (vertical).

**19.3.5.** Test fit the cross brace. The cross brace should be installed on the C channel of the legs to tie the far corners, bottom left of one leg to top right of the other leg or vice versa. If the cross brace extends past the corners, mark, and cut, so it does not protrude out from the leg it is mounted to, filing to deburr.

**19.3.6.** Install using 1/4"-14 x 1" driller screws.



*image 56*

## 19.4 ▶ HURRICANE TIE-DOWNS

Hurricane Tie-Downs can be used to provide additional security in areas prone to high-wind weather, helping to prevent the ramp from dislodging.

**19.4.1.** Each ramp will have one (1) anchor (half of a kit), and each platform will have two (2) anchors (a complete kit).

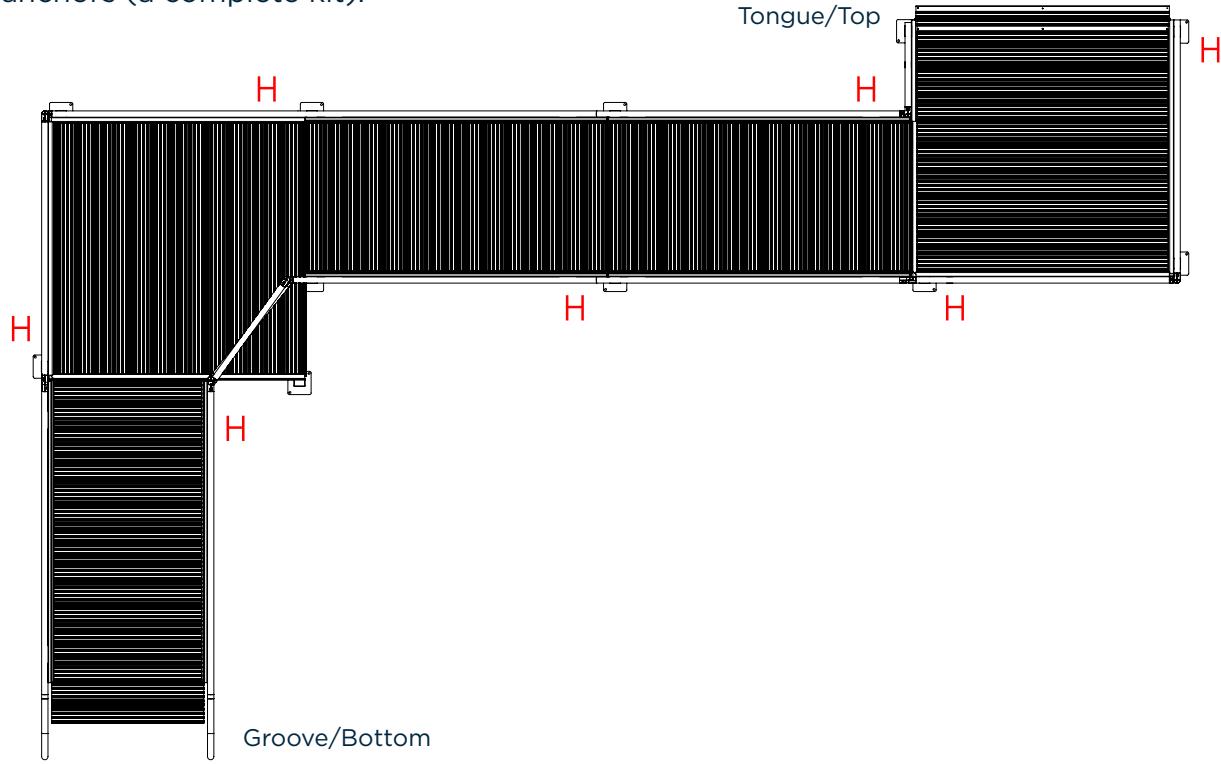


image 57

H = Hurricane Tie-Down

**19.4.2.** Each kit includes a 25' cable, two (2) anchors and four (4) clamps.

**19.4.3.** Cut the 25' cable in half.

**19.4.4.** Thread the top of the cable through the universal bracket. Clamp the cable where it loops through the bracket.

**19.4.5.** Screw the anchor firmly into the ground, leaving only the eye exposed.

**19.4.6.** Thread the end of the cable to the anchor, and clamp in place where it loops through the eye of the anchor.

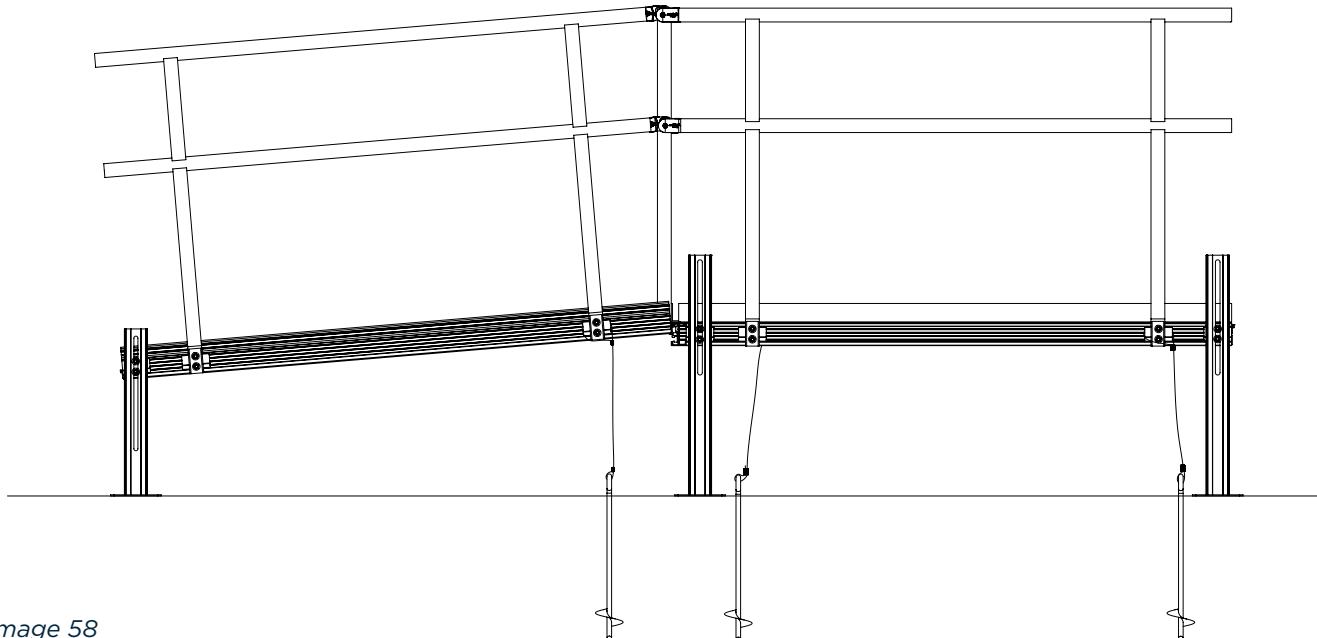


image 58



Do not loop the cable entirely through the universal bracket. It must be cut and clamped accordingly.

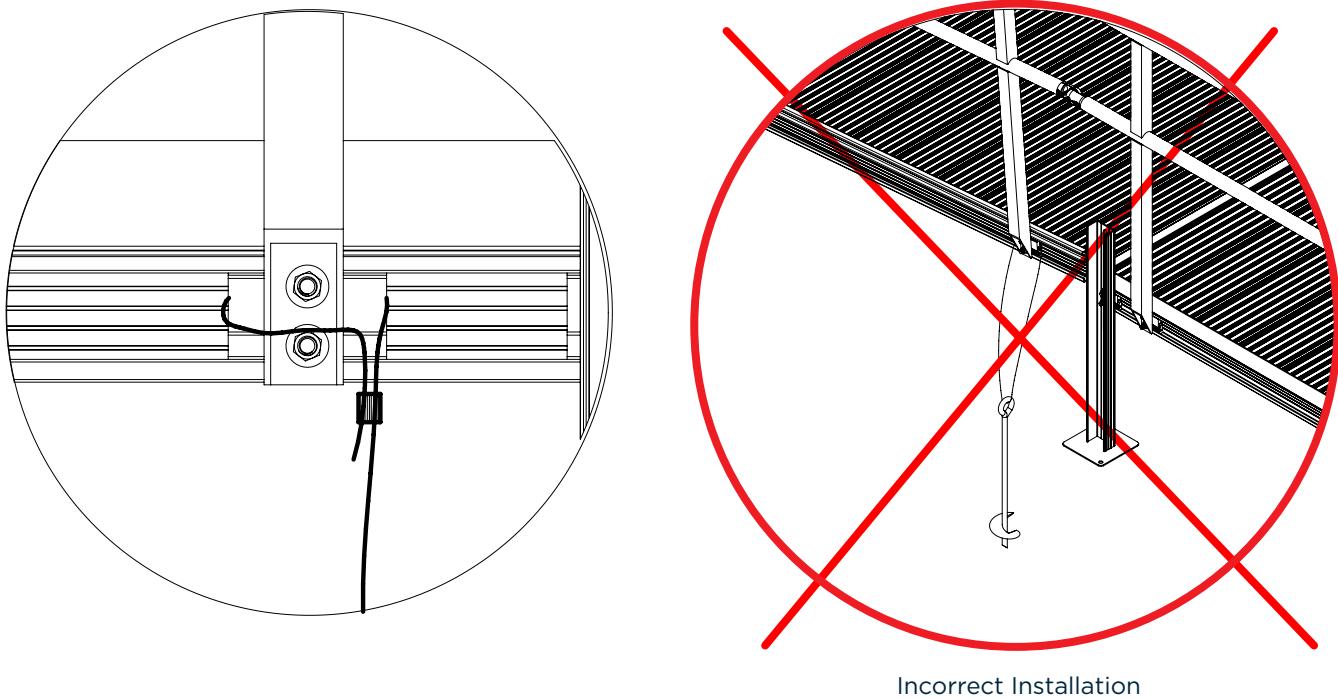
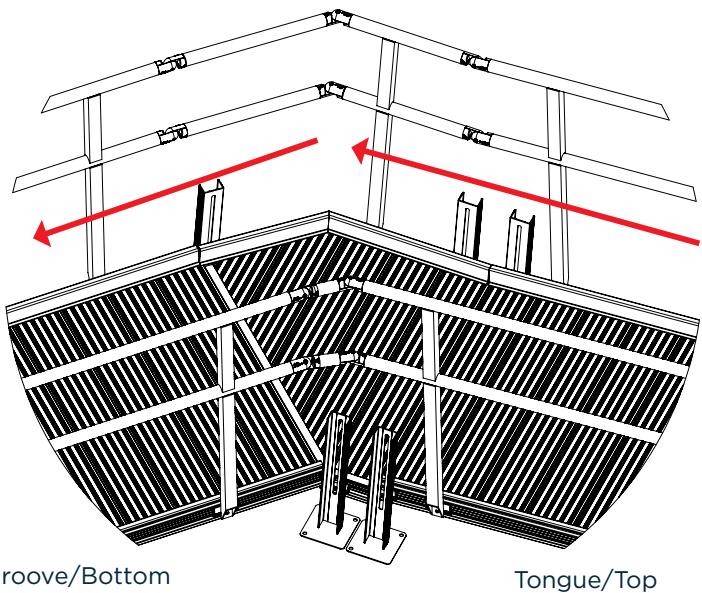


image 59

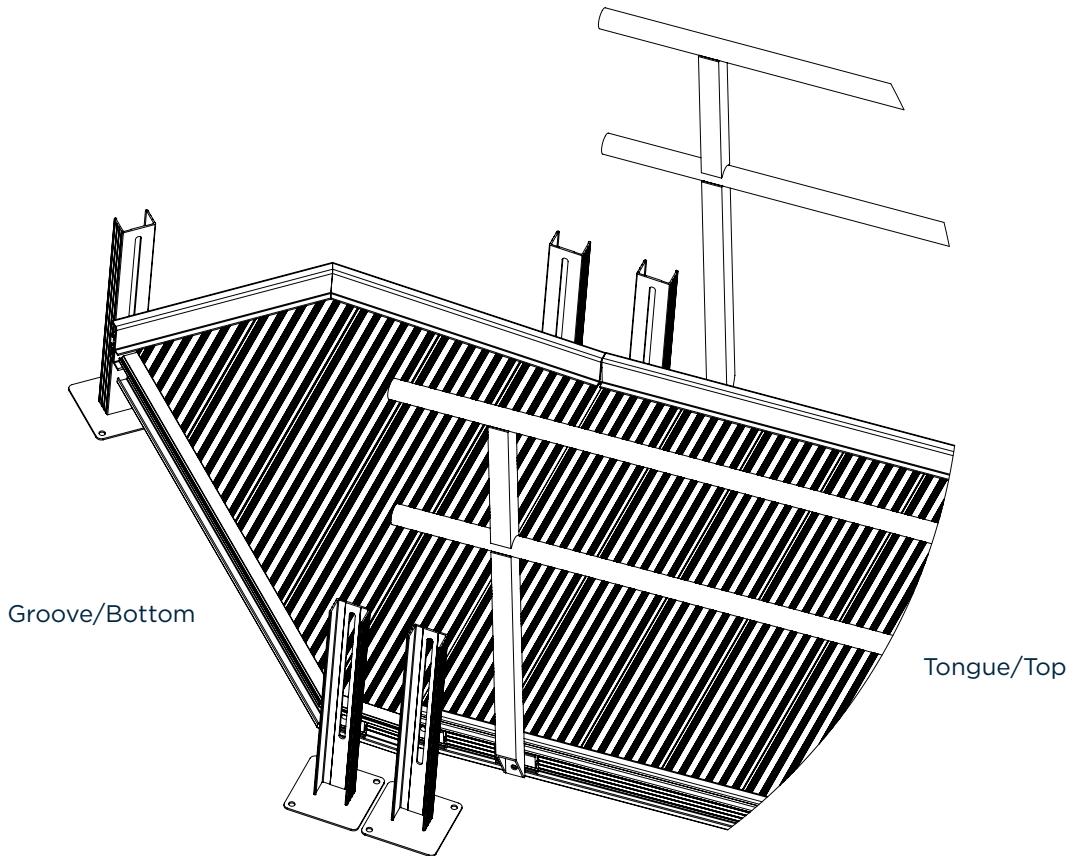
## 19.5 ▶ PIE PLATFORMS

- An understanding of installing dual-rail handrails is necessary before installing a pie platform. For dual-rail handrail installation, please see **section 18**.
- Pie platforms are specific to the direction of the turn and are not interchangeable. The platforms are named for the direction the ramp turns as you travel down the ramp. The pictured layout has a left pie platform.
- Always install pie platforms level, not on a slope.



*image 60*

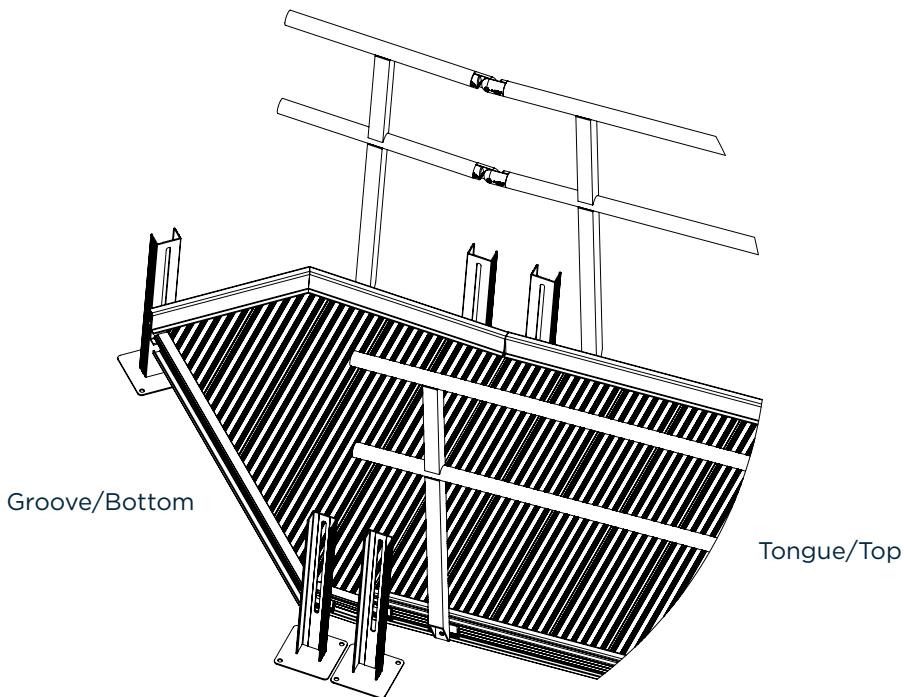
### Step 1 ▶ Install three (3) legs at the three (3) corners of the pie platform.



*image 61*

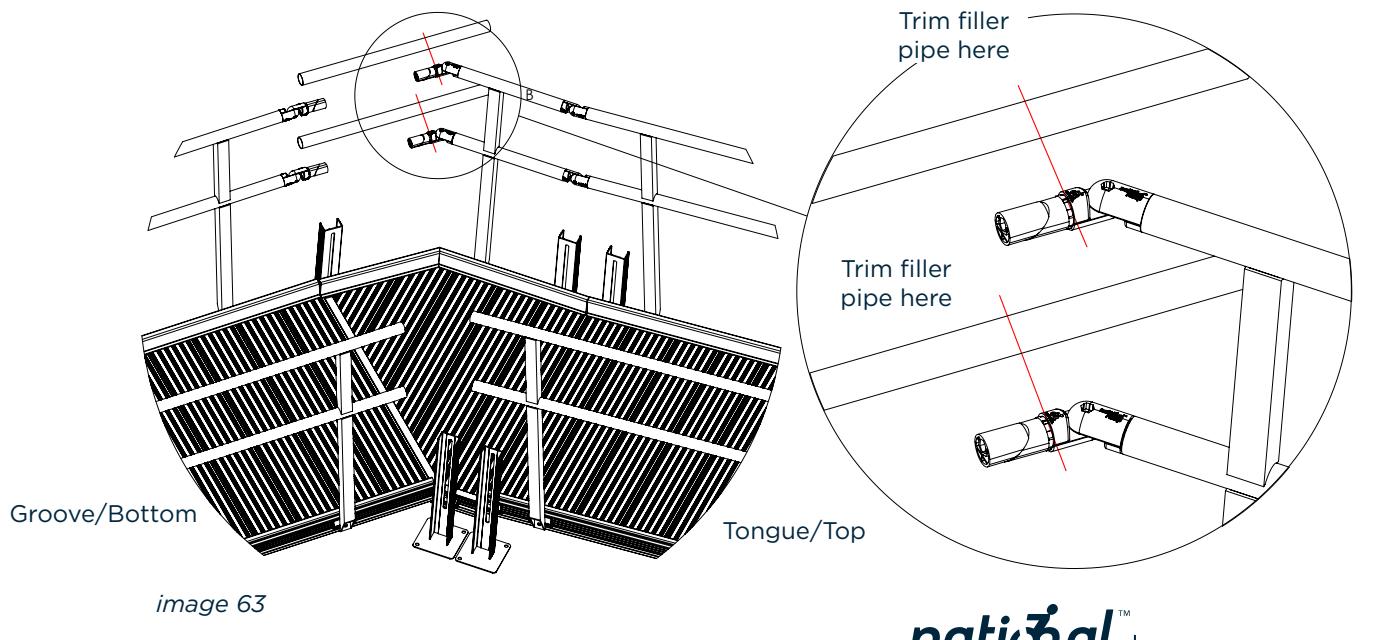
## Step 2 ▶ Install the pie T-Post at the outside corner.

! The pie T-Post is specific to the pie platform and is not switchable with a square platform T-Post.



## Step 3 ▶ Begin the handrail assembly.

- 19.5.1. Railings, including the pie T-Post, will need to be trimmed. Make sure to remove burrs after cutting.
- 19.5.2. When measuring cuts for the handrails or filler pipe, line up the elbow joints with the change in direction or where the adjoining rails would intersect if extended.



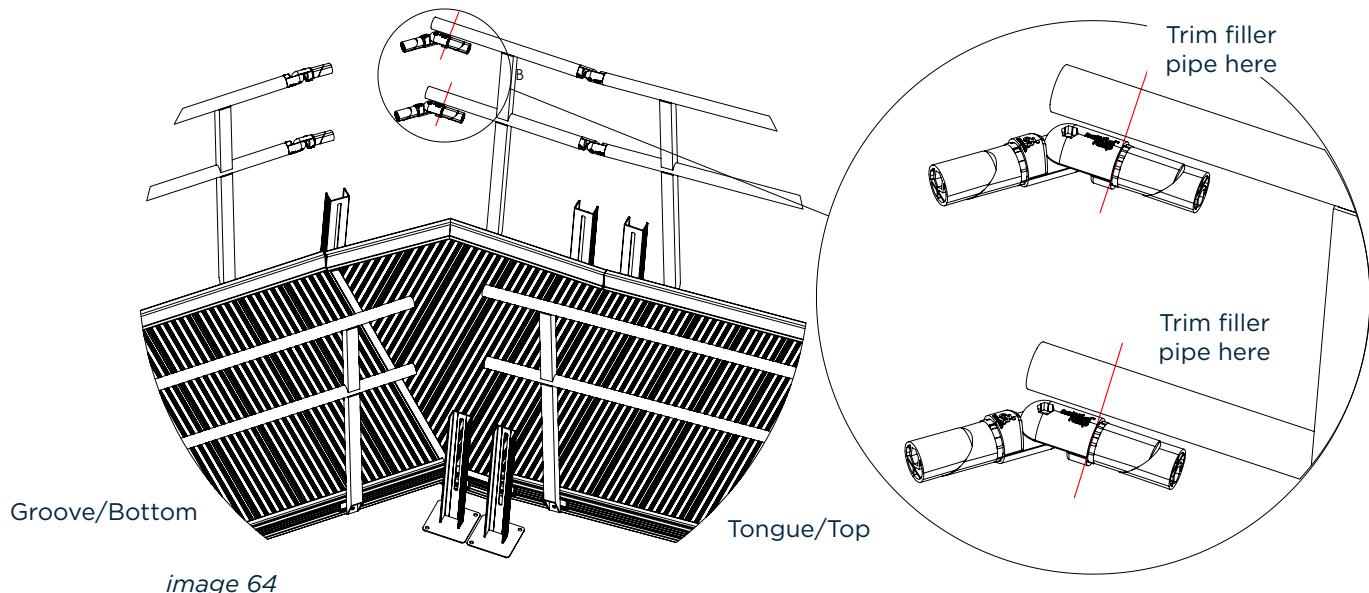


image 64

**19.5.3.** Join the outside corner ramp handrails using elbows and filler pipes.

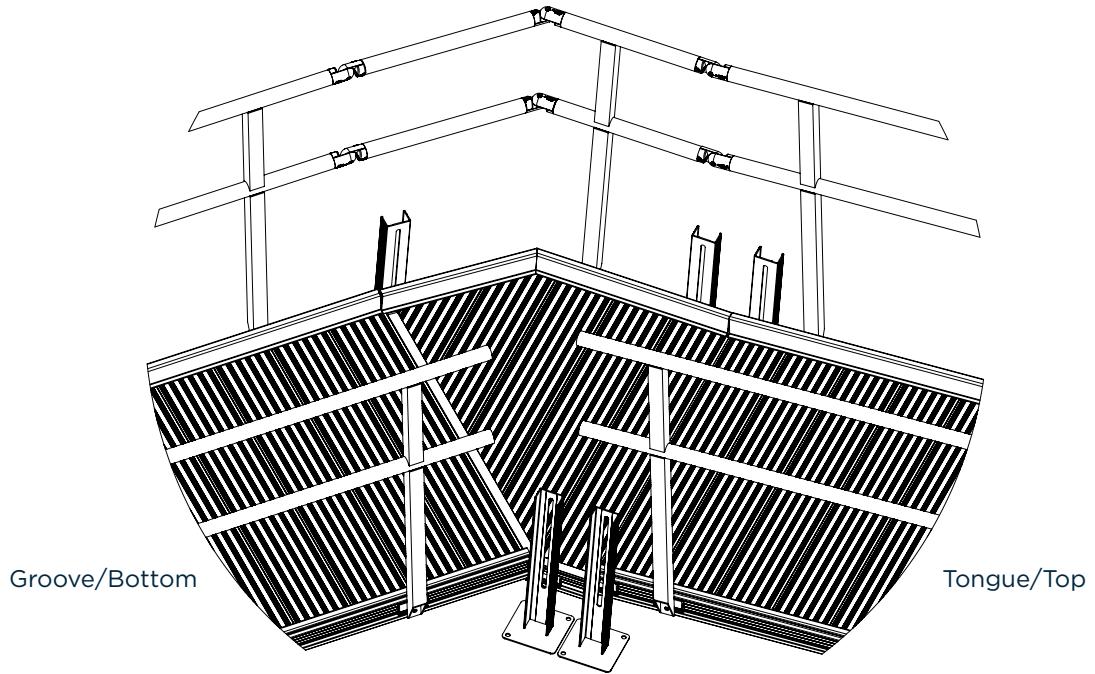


image 65

**19.5.1.** Join the inside corner ramp handrails using an elbow and the pie inside corner elbow assembly.

**19.5.1.1.** Insert one half of an elbow into each end of the corner handrails.

**19.5.1.2.** Insert the inside corner elbow assembly into each end of the elbow.

**19.5.1.3.** Lining up the elbow joints with the change in direction, trim the handrails, clearing any burrs.

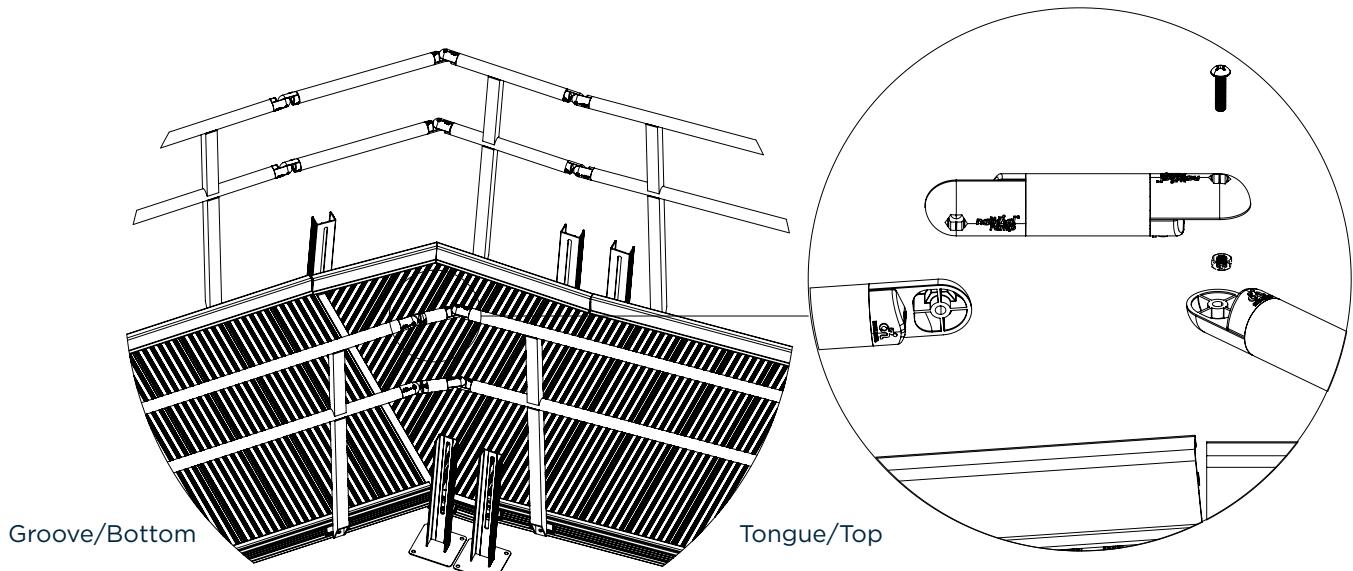


image 66

## 19.6 ▶ STEP AND GATE SYSTEMS

! Step Systems should attach to a level platform, and not sloped ramping.

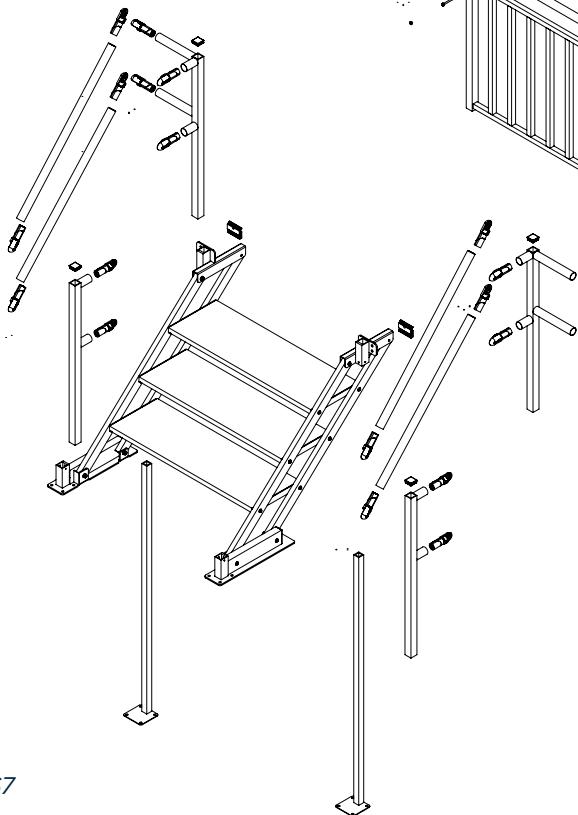
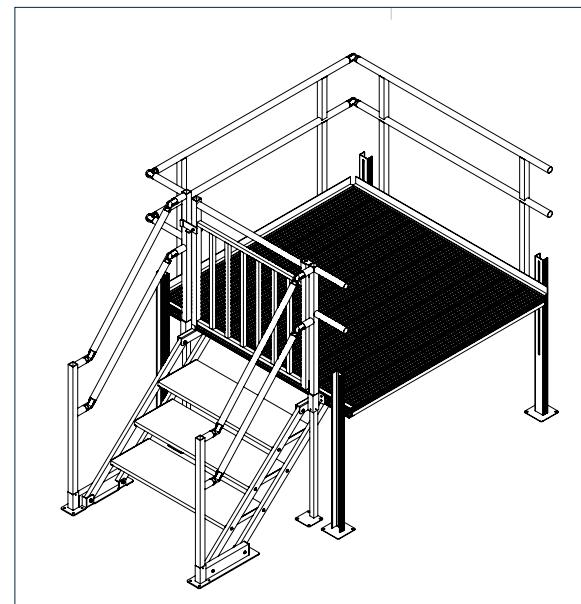
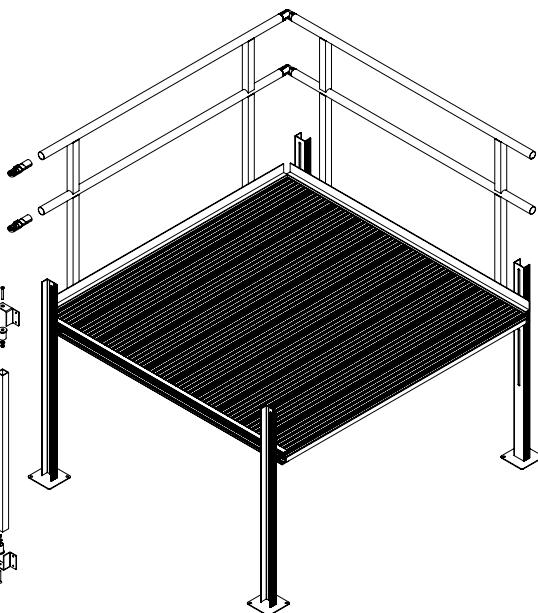


image 67

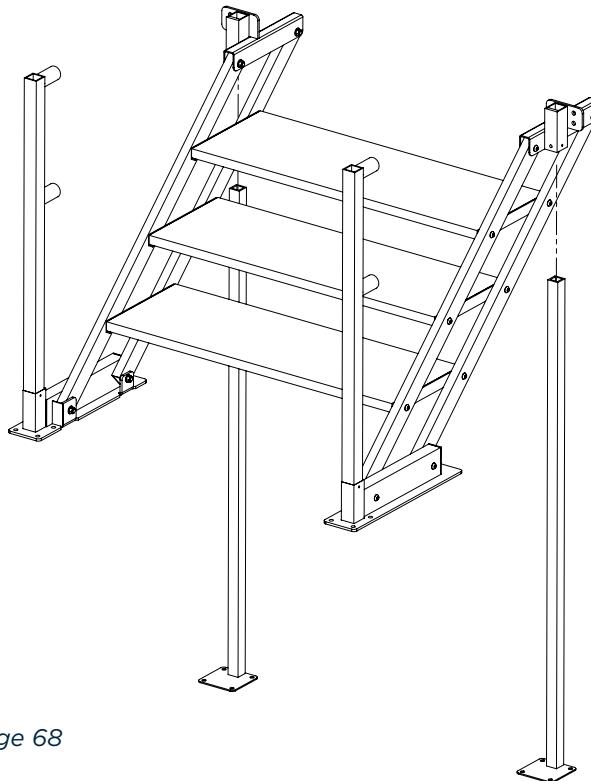


### Tools Required

- Impact Driver
- Drill
- 3/8" socket
- 7/16" socket and/or wrench
- 9/16" socket
- 3/16" Allen bit/wrench
- 1/4" drill bit
- Level
- Pipe cutter
- Sanding/Filing Tool

**19.6.1.** Select the stair support leg that will extend 12-18" above the platform height.

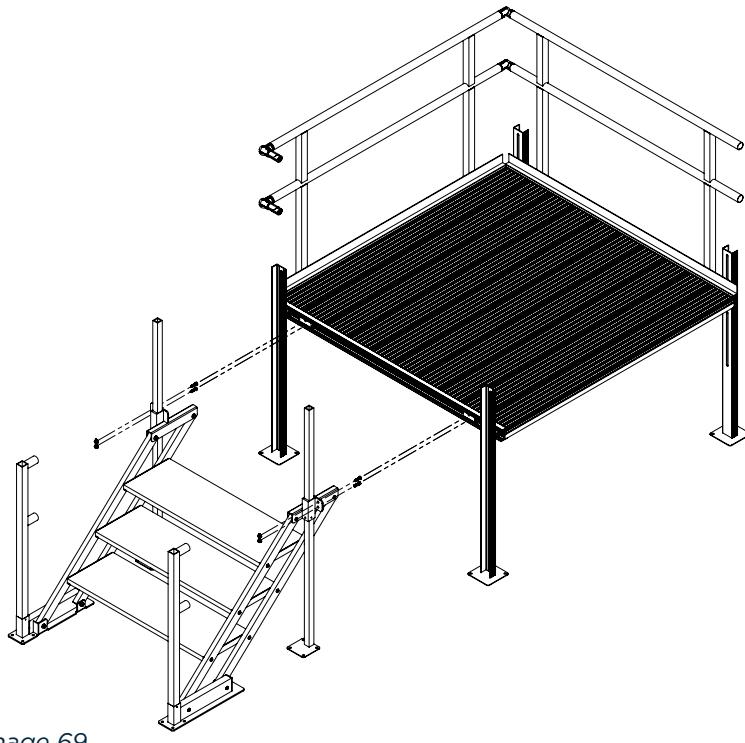
**19.6.2.** Insert two (2) legs through the leg receivers on the step assembly.



*image 68*

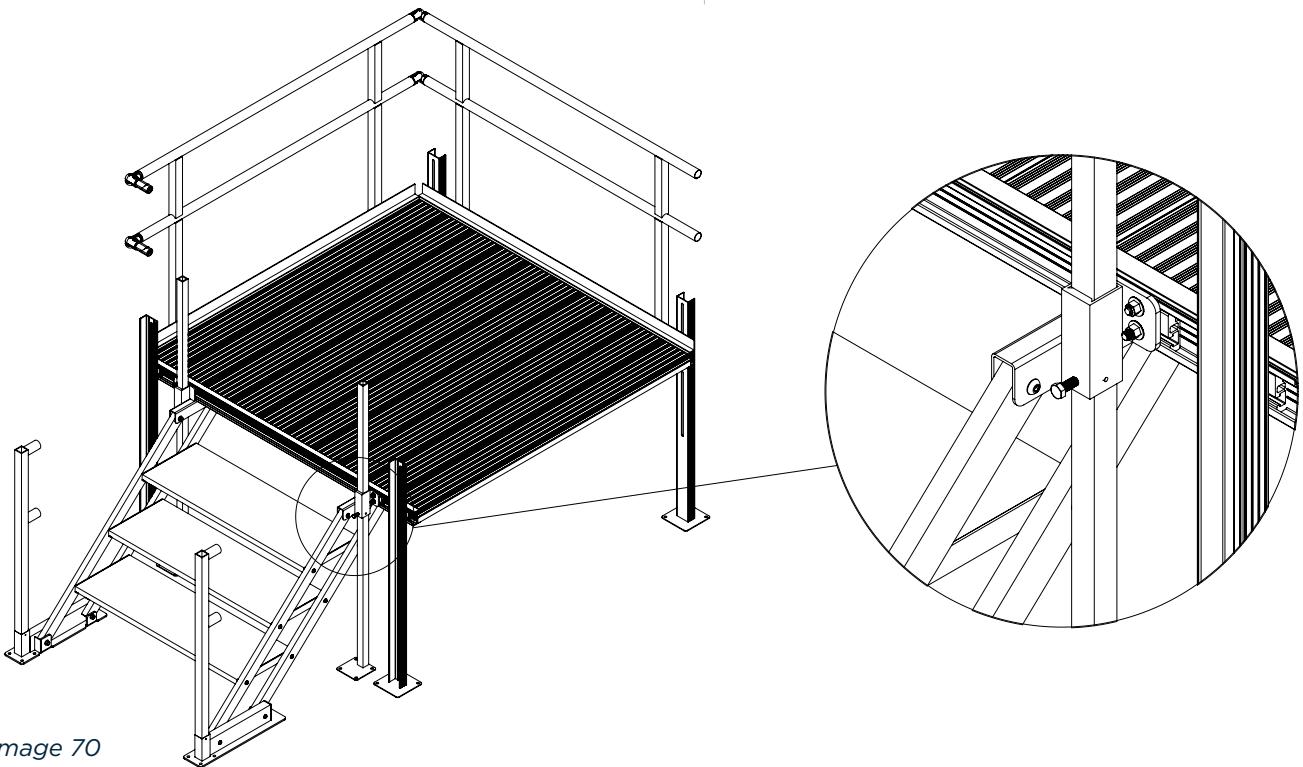
**19.6.3.** Attach two (2) universal brackets with bolts into the platform side channel.

**19.6.4.** Centering the steps on the platform, attach the step assembly, lining up the universal brackets on the platform with the leg receivers on the step assembly.



*image 69*

**19.6.5.** Ensure the legs inserted into the step assembly are firmly grounded, lock the leg with a  $3/8''$ -16 x  $3/4''$  set bolt and  $1/4''$ -14 x 1" drilling screw in the predrilled holes.



**19.6.6.** Insert the left and right step top posts over the stair support legs, directing the longer rails towards the platform handrails and the shorter rails pointing towards the steps.

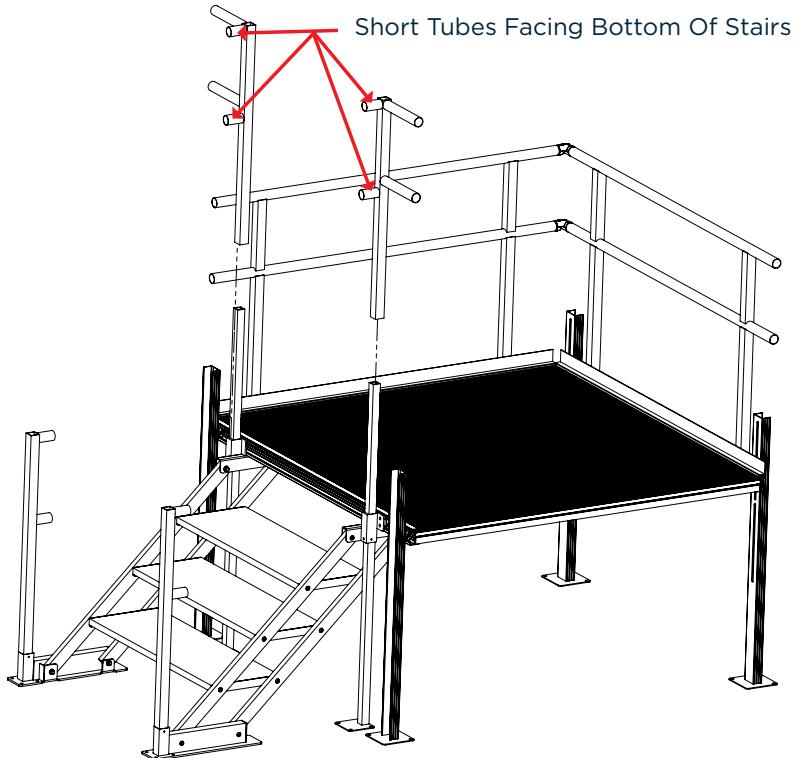


image 71

**19.6.7.** Use elbows to join the upper and lower platform handrails with the upper and lower rails of the step top posts. Cut the railings to fit, clearing any burrs.

**19.6.8.** Measure and cut round tubes for the step handrails, clearing any burrs. Join the cut handrails to the step upper and lower posts with elbows. There will be a total of four (4) step handrails, two (2) per side.

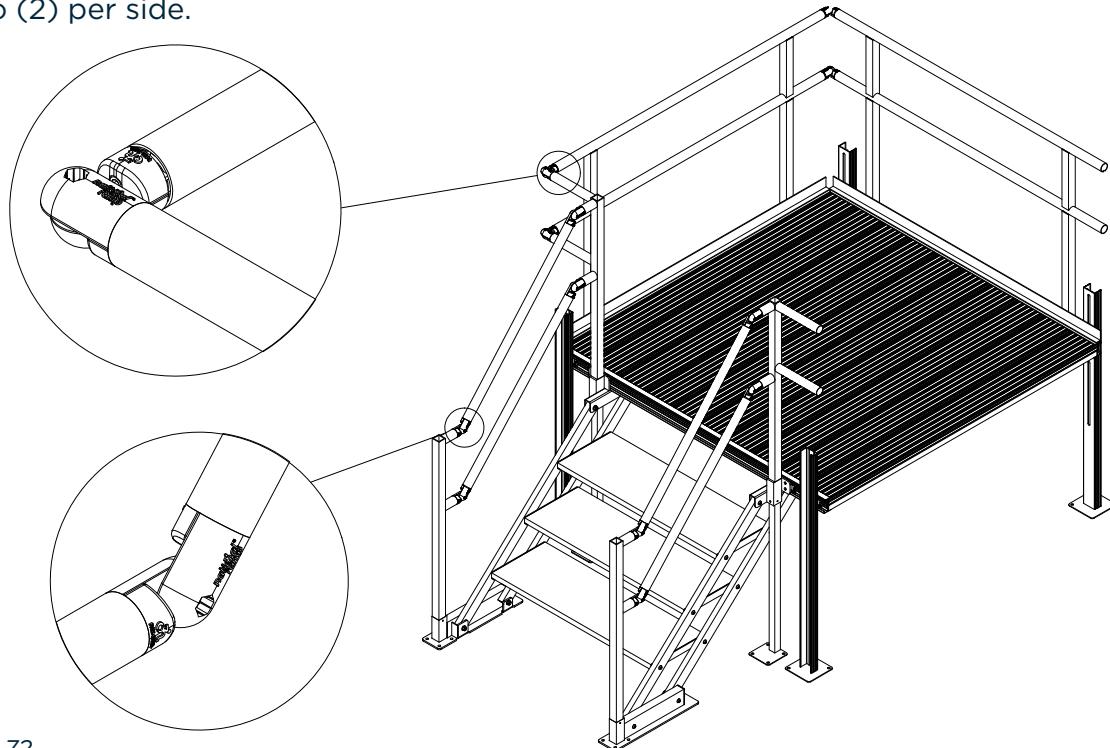


image 72

**19.6.9.** Fasten the step left and right top posts to legs with  $\frac{1}{4}$ "-14 x 1" drilling screws.

**19.6.10.** Insert black square caps to top of the step upper and lower posts.

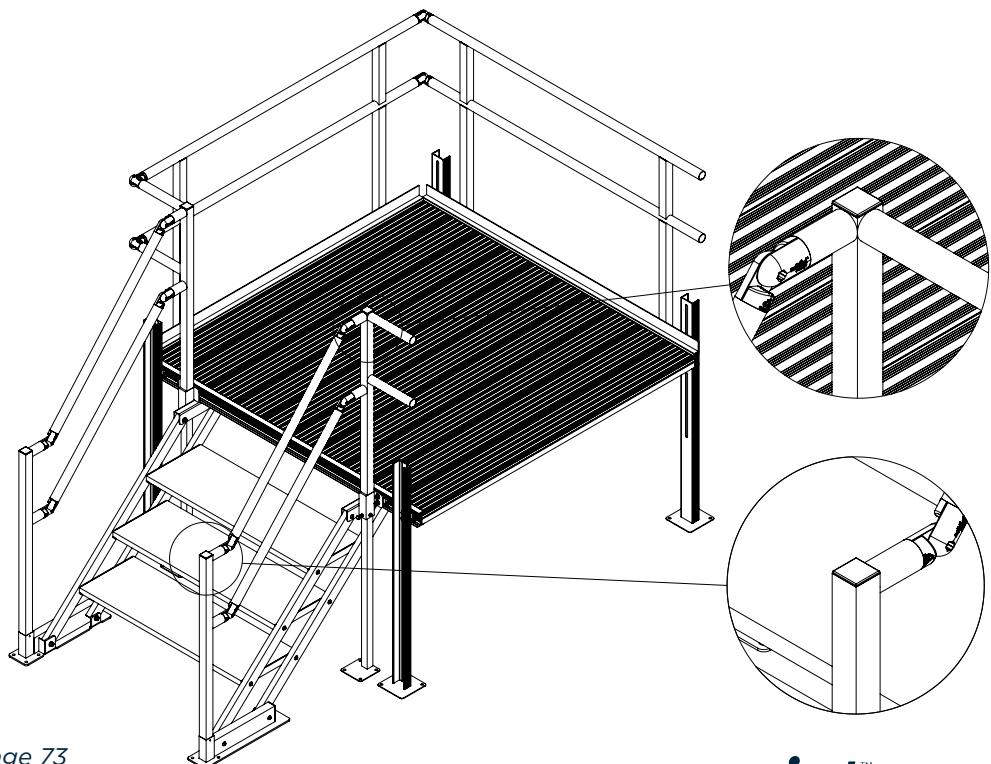


image 73

**19.6.11.** Anchor left and right step bases and leg plates to the ground. There will be a total of 12 anchors, six (6) per side.

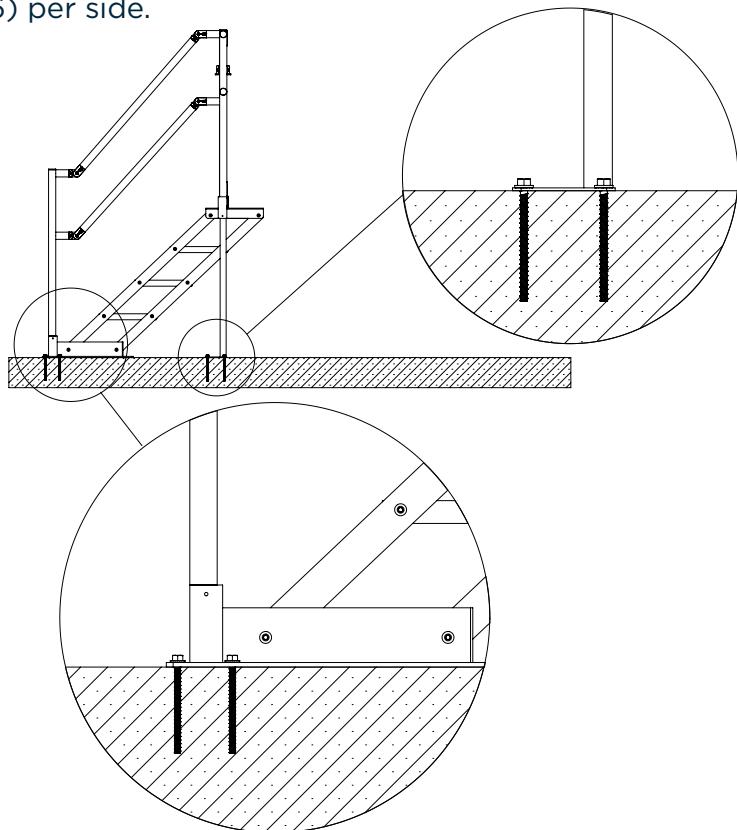


image 74

**19.6.12.** Attach the gate to the step system.

**19.6.12.1.** Assemble the gate hinges to the gate and test fit against the step upper post. The gate can be installed on either the left or right step upper post.

**19.6.12.2.** Starting with the lower gate bracket, mark and fasten each gate bracket to the step upper post using:

- Two (2)  $\frac{1}{4}$ "-20 x 2" hex head bolts
- Four (4)  $\frac{1}{4}$ " washers
- Two (2)  $\frac{1}{4}$ "-20 acorn nuts

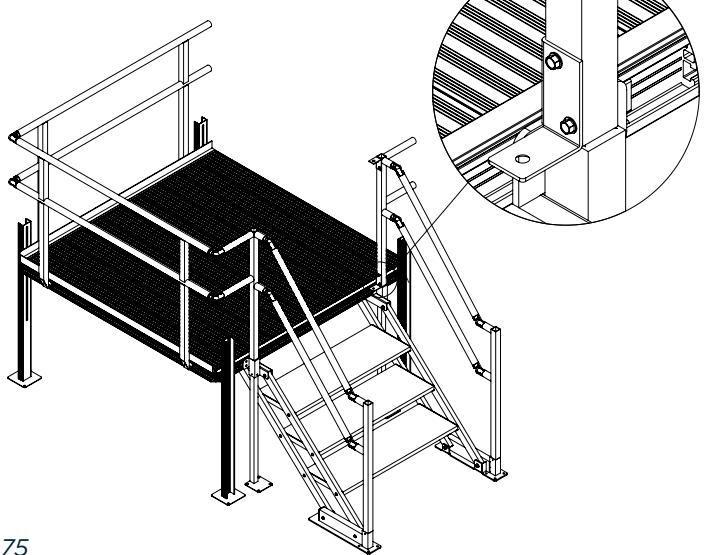


image 75

**19.6.12.3.** Insert plastic black square cap to top of gate square tube on latch side.

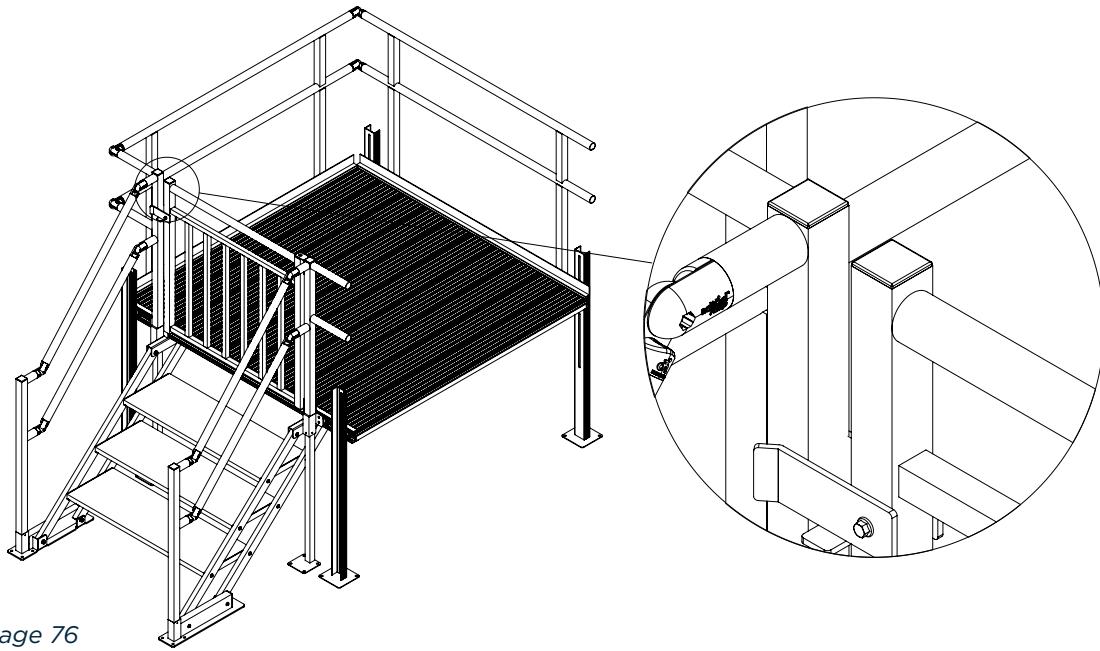


image 76

**19.6.12.4.** Test gate and latch functionality.

## 19.7 ▶ VERTICAL PICKETS

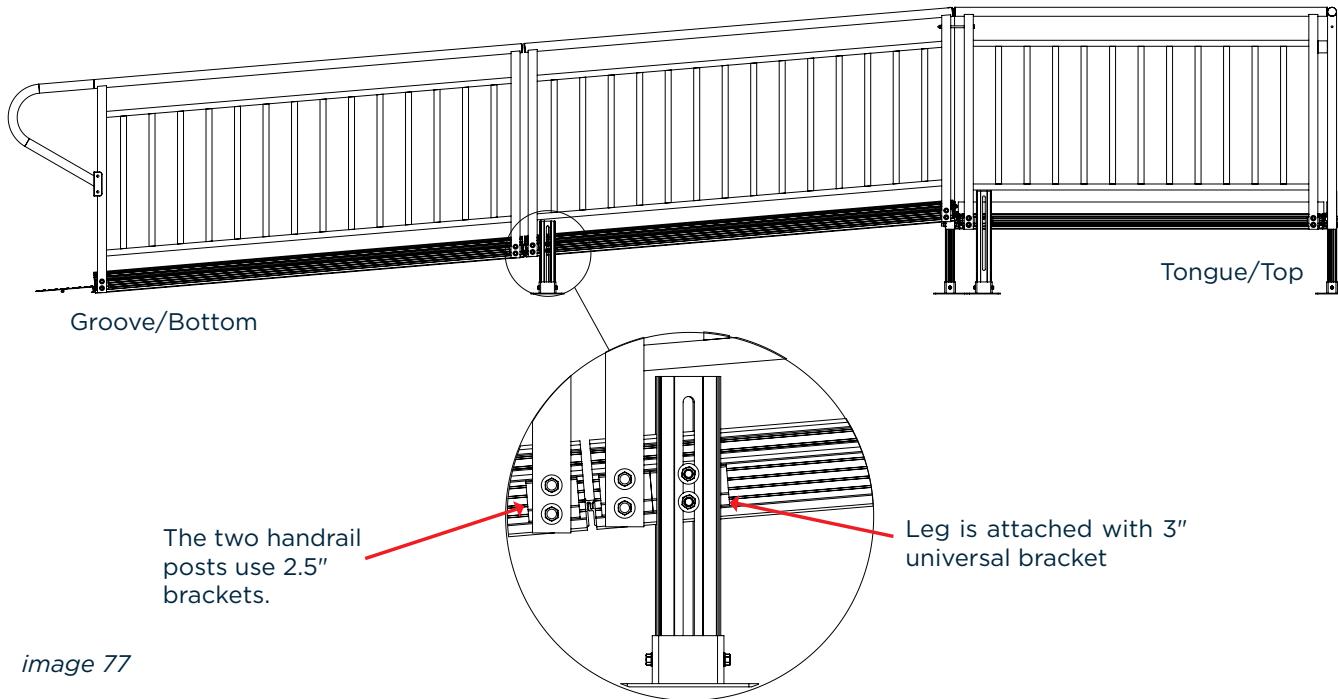


image 77



### TIPS AND TRICKS

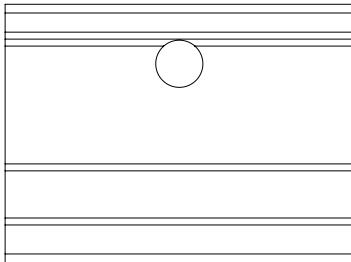
Vertical picket railings can only be installed on ramps with a 1:12 slope.

If the picket railings are only be used for part of the ramp, it is recommended that the change between vertical picket and dual rail handrails take place at a platform.

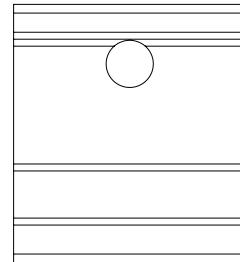
An understanding of installing dual-rail handrails is necessary before installing the vertical picket handrails. The primary differences between the two railings are:

- The vertical picket leg channel and footplate are two separate components, to allow for more customization, so the leg does not interfere with the bottom rail of the vertical picket handrails.
- While the legs are installed with 3" universal brackets (like dual-line handrails), vertical picket handrails connect to the system using 2.5" universal brackets with 3/8" - 16 x 2.5" bolts. To join the handrails together, use through-bolts for straight connections and corner brackets for corner connections.

3" Universal Bracket (Used for installing legs)



2.5" Universal Bracket (used for vertical picket handrails)



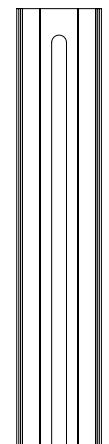
*image 78*

In addition to the tools required to install the Liberty Series™ Ramp System, the following are also needed:

- 9/16" open end wrench (if the configuration includes an inside corner)
- 7/16" socket and/or wrench

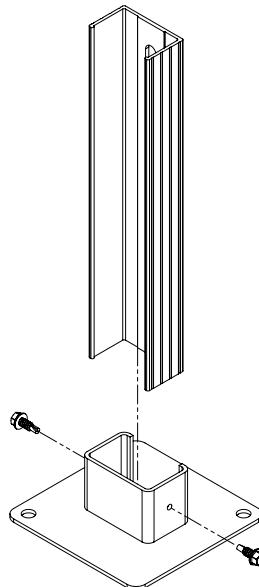
**19.7.1.** Determine the required leg sizes. The top of each platform leg should extend 2-3" above the platform's travel surface, while each ramp section leg should extend 3-4" above its travel surface.

**19.7.2.** Cut bottom of leg channel. Avoid cutting through slot.



*image 79*

**19.7.3.** Attach foot plate to bottom of leg channel using two 1/4"-14 x 1" drilling screws.

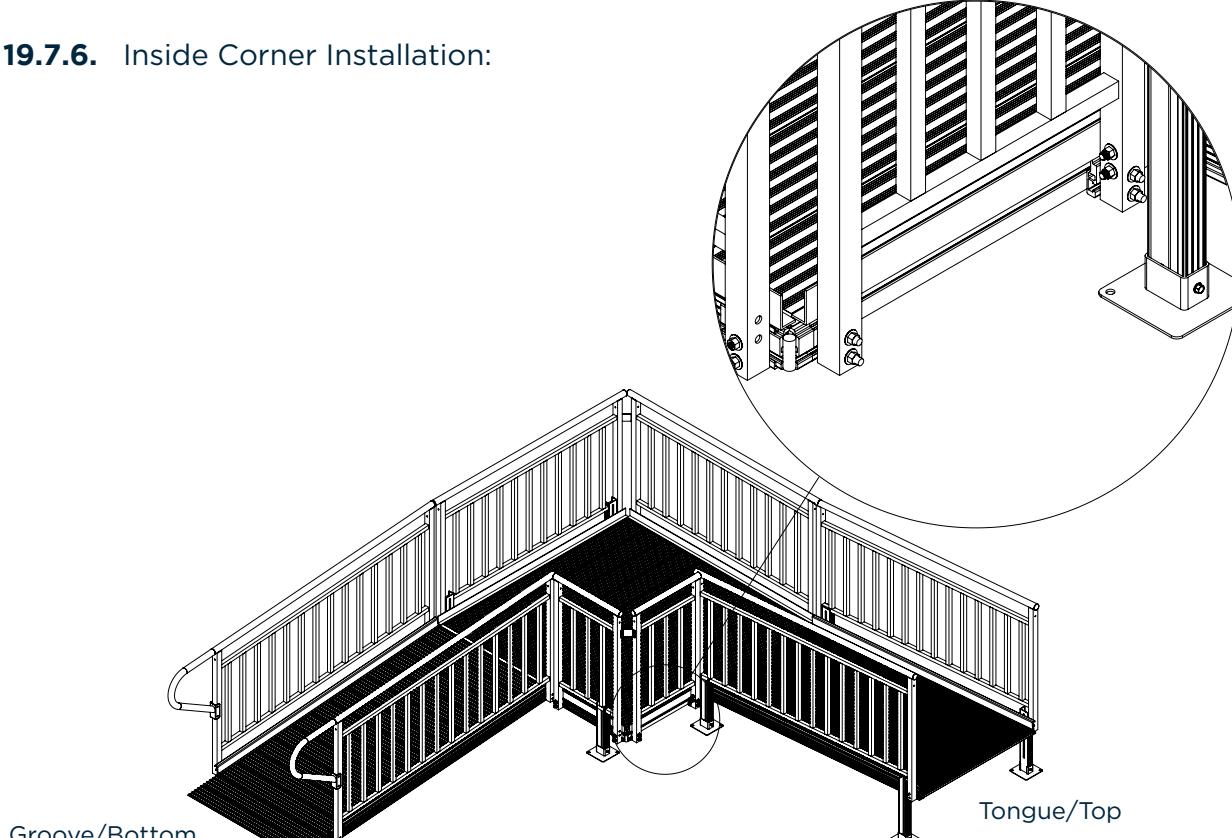


*image 80*

**19.7.4.** Install leg to section using standard 3" universal brackets and bolts, placing them between where the handrail square posts will be placed.

**19.7.5.** Attach the 2.5" universal brackets and 3/8" - 16 x 1.5" bolts for the handrails into the section, then attach the handrails to the universal bracket assembly. Do not over-tighten handrails to allow for later adjustments.

**19.7.6.** Inside Corner Installation:



*image 81*

When the layout for vertical picket railings includes a turn platform, the ramp section before that platform secures the railings for the tongue-side of the platform.

- 19.7.6.1.** During the installation of the ramp section leading into the platform, install two (2) 3/8" - 16 x 5" bolts into the 2.5" universal bracket used at the bottom of the interior side of the ramp section.
- 19.7.6.2.** Install the first inside corner vertical picket handrail onto the platform side with the groove.
- 19.7.6.3.** Use a universal bracket assembly for the side closest to the off-going ramp.
- 19.7.6.4.** Use a switchback bracket on the corner of the platform.

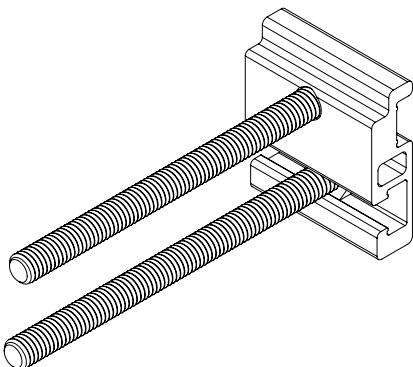


image 82

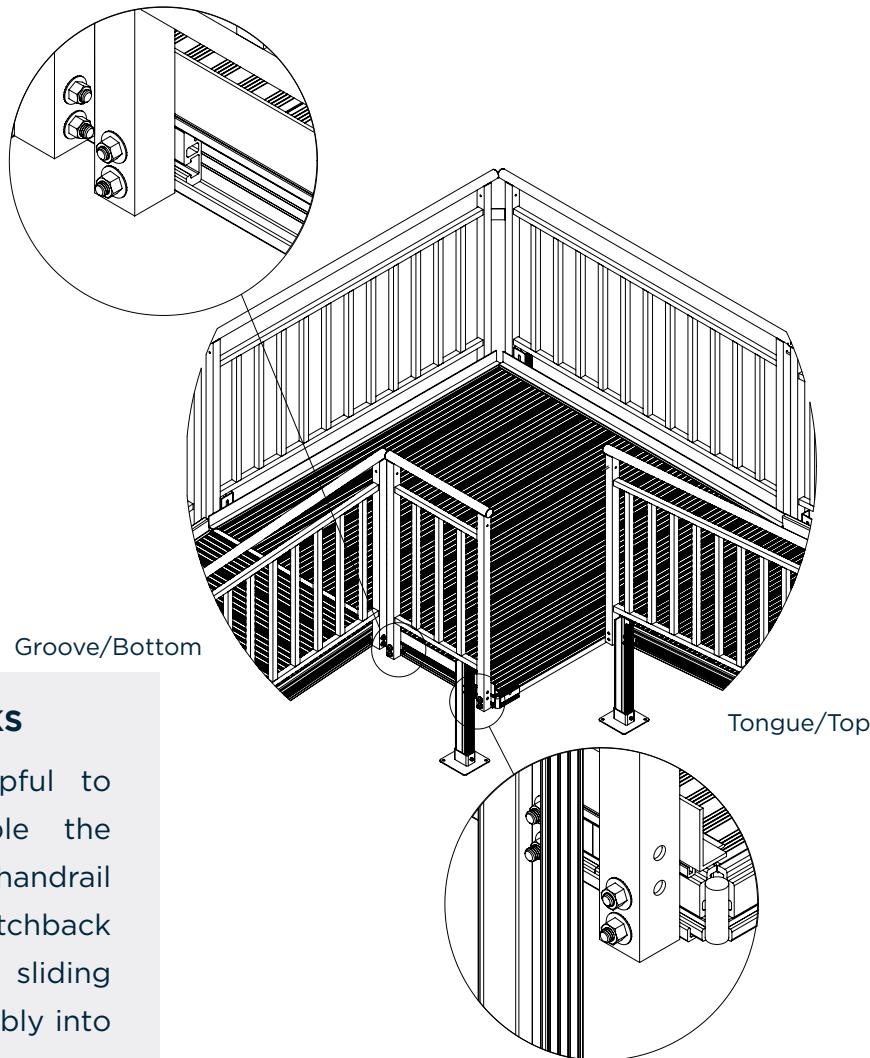


image 83



#### TIPS AND TRICKS

It may be helpful to loosely assemble the vertical picket handrail to the switchback bracket before sliding the entire assembly into the channel.

**19.7.6.5.** Once the first inside corner vertical picket handrail is assembled to the platform channel, snug the serrated nuts without fully tightening.

**19.7.6.6.** Install the vertical picket handrail on the tongue side of the platform using the extended bolts from the ramp section vertical picket handrail coming onto the platform and the switchback bracket on the platform.

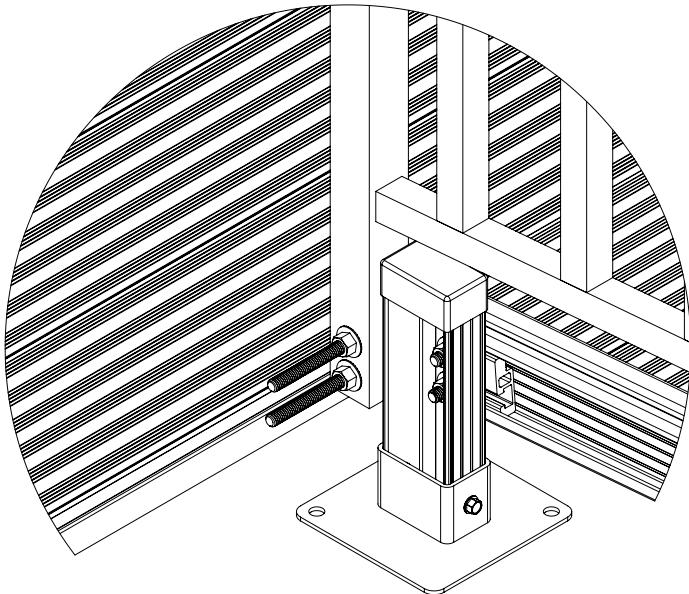


image 84

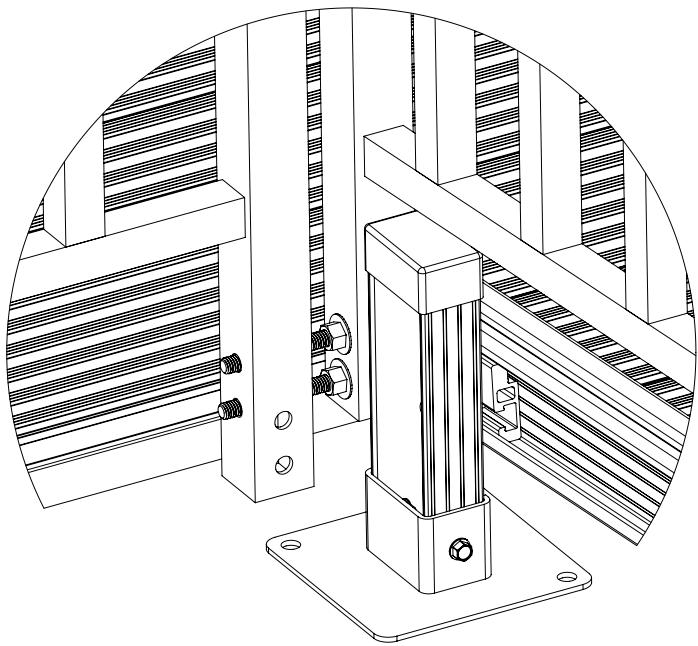
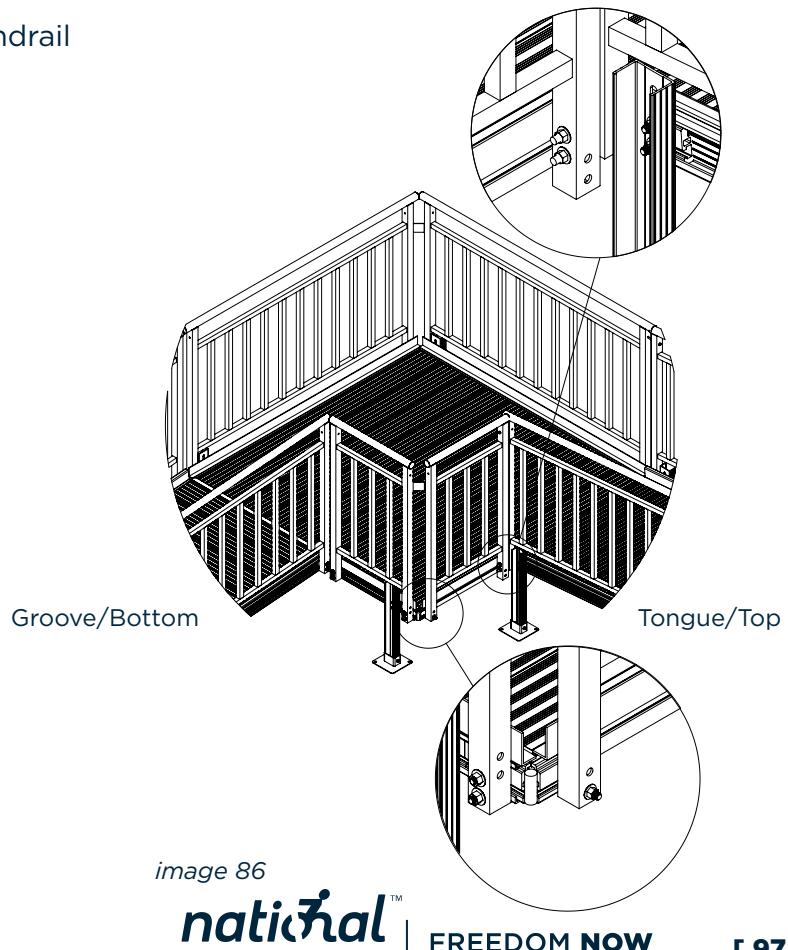
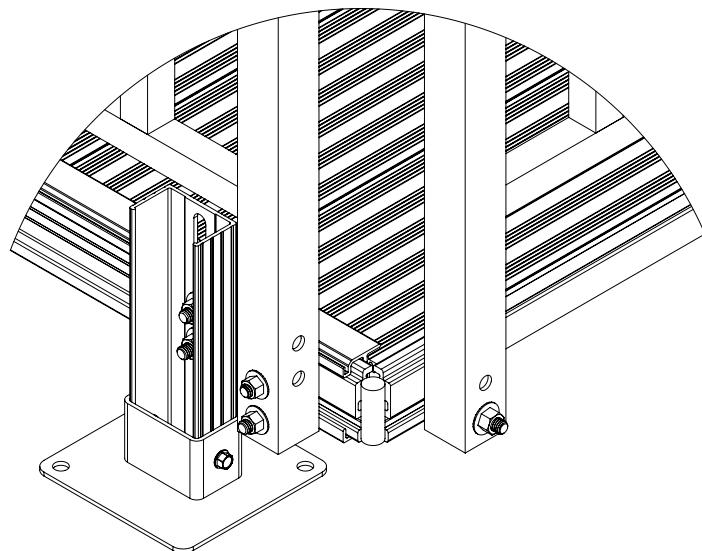


image 85

**19.7.6.7.** Mount the vertical picket handrail to the extended bolts.

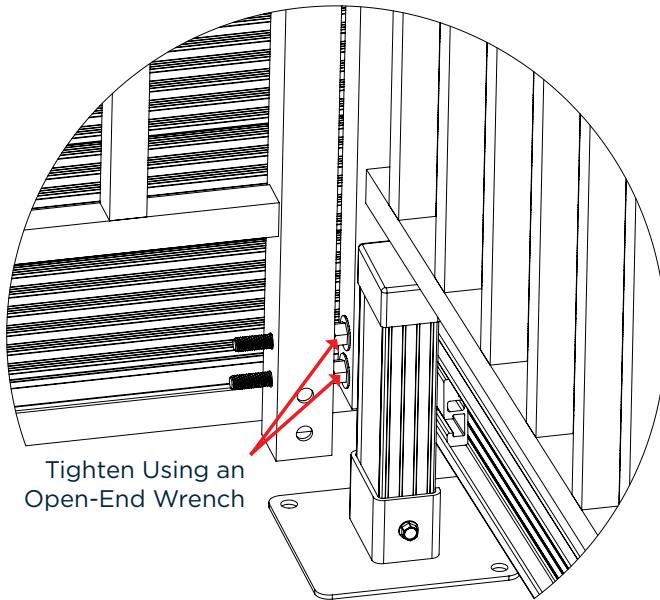


**19.7.6.8.** Mount the other side of the vertical picket handrail to the switchback bracket using a 3/8"-16 x 2.5" bolt on the bottom slot.



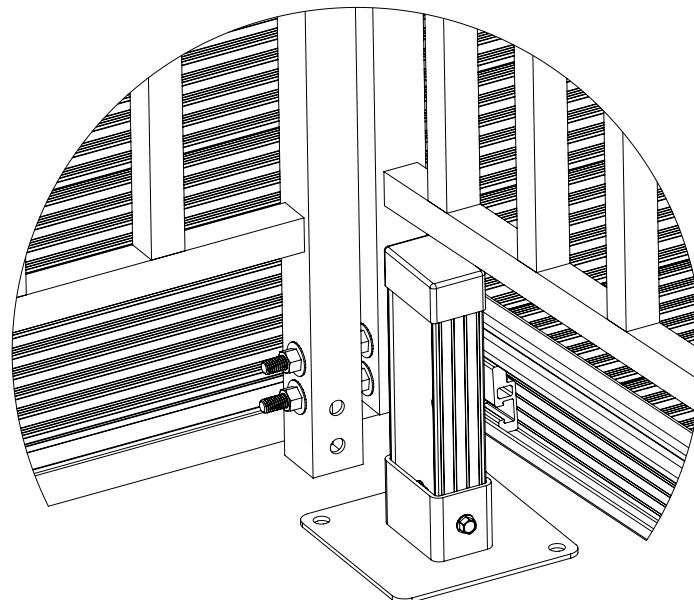
*image 87*

**19.7.6.9.** Once the vertical picket handrail is positioned, tighten the serrated nuts holding the oncoming ramp with a 9/16" open end wrench.



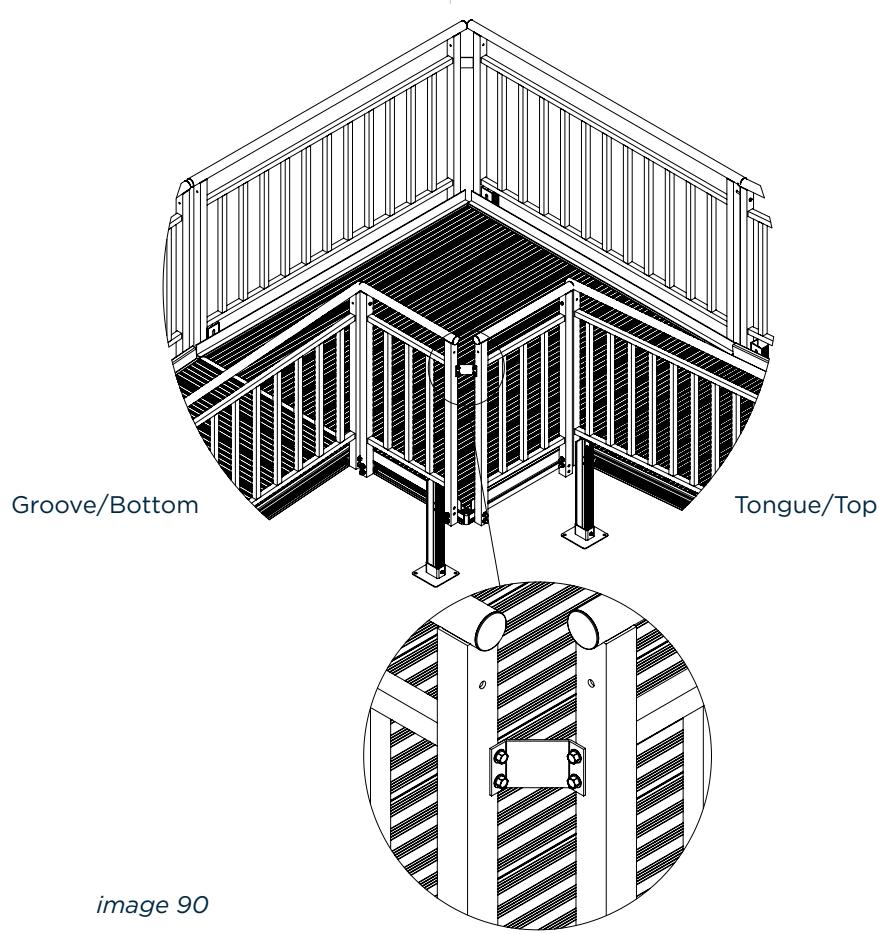
*image 88*

**19.7.6.10.** Install another set of serrated nuts to the 5" bolts to attach the vertical picket handrail.



*image 89*

**19.7.7.** Once all handrails have been installed, insert round plug caps to the ends of all handrails.



*image 90*

**19.7.8.** Fasten all handrails together using through-bolts for straight connections or corner support brackets for corner connections.

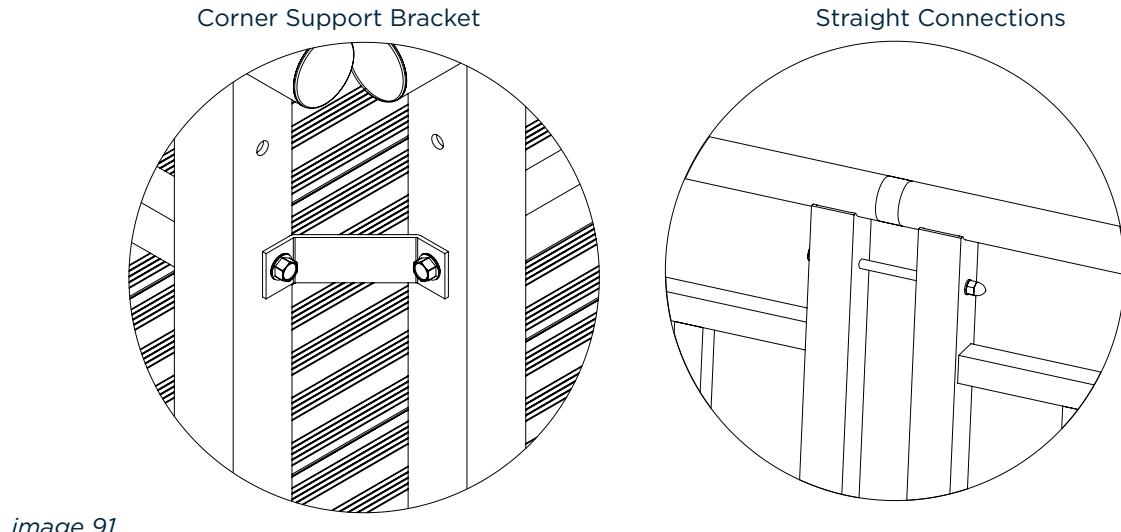


image 91

**19.7.9.** Connect straight connections using through bolts, washers and acorn nuts:

- $\frac{1}{4}$ "-20 x 4.5" bolt for Ramp-onto-Ramp or Platform-onto-Ramp connections
- $\frac{1}{4}$ "-20 x 5.0" bolt for Ramp-onto-Platform connections
- $\frac{1}{4}$ "-20 x 5.5" bolt for Platform-onto-Platform connections

**19.7.10.** Connect all corners using the corner support bracket.

- After confirming handrails are plumb, line the corner support bracket with the top rail and fasten using two (2)  $\frac{1}{4}$ "-14 x 1" drilling screws.
- Install two (2)  $\frac{1}{4}$ " - 14 x 1" pan head drilling screws to secure the switchback bracket to the platform.

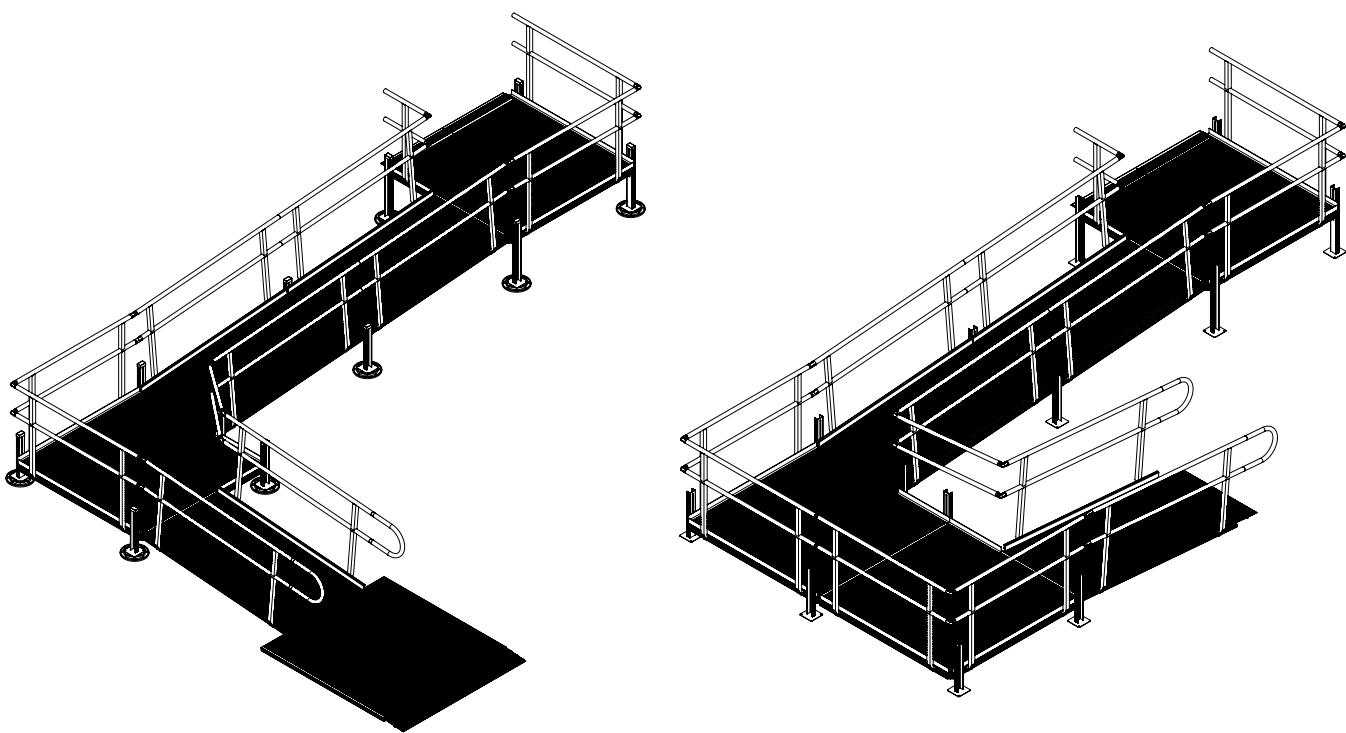
**19.7.11.** Once all handrails connections have been made, fully tighten all leg and handrail nuts.

**19.7.12.** Inspect the entire ramp installation.





# TWO LAYOUT CONFIGURATIONS START TO FINISH



## 20. Layout Configuration 1 | 90° Turn

---

These are the start to finish instructions for the layout pictured below. The layout consists of a 5'x5' platform at the door, turning 12' to the right to a 5'x5' platform, turning left with a final 7' ramp run to a 5'x5' landing pad. The overall height is 19".

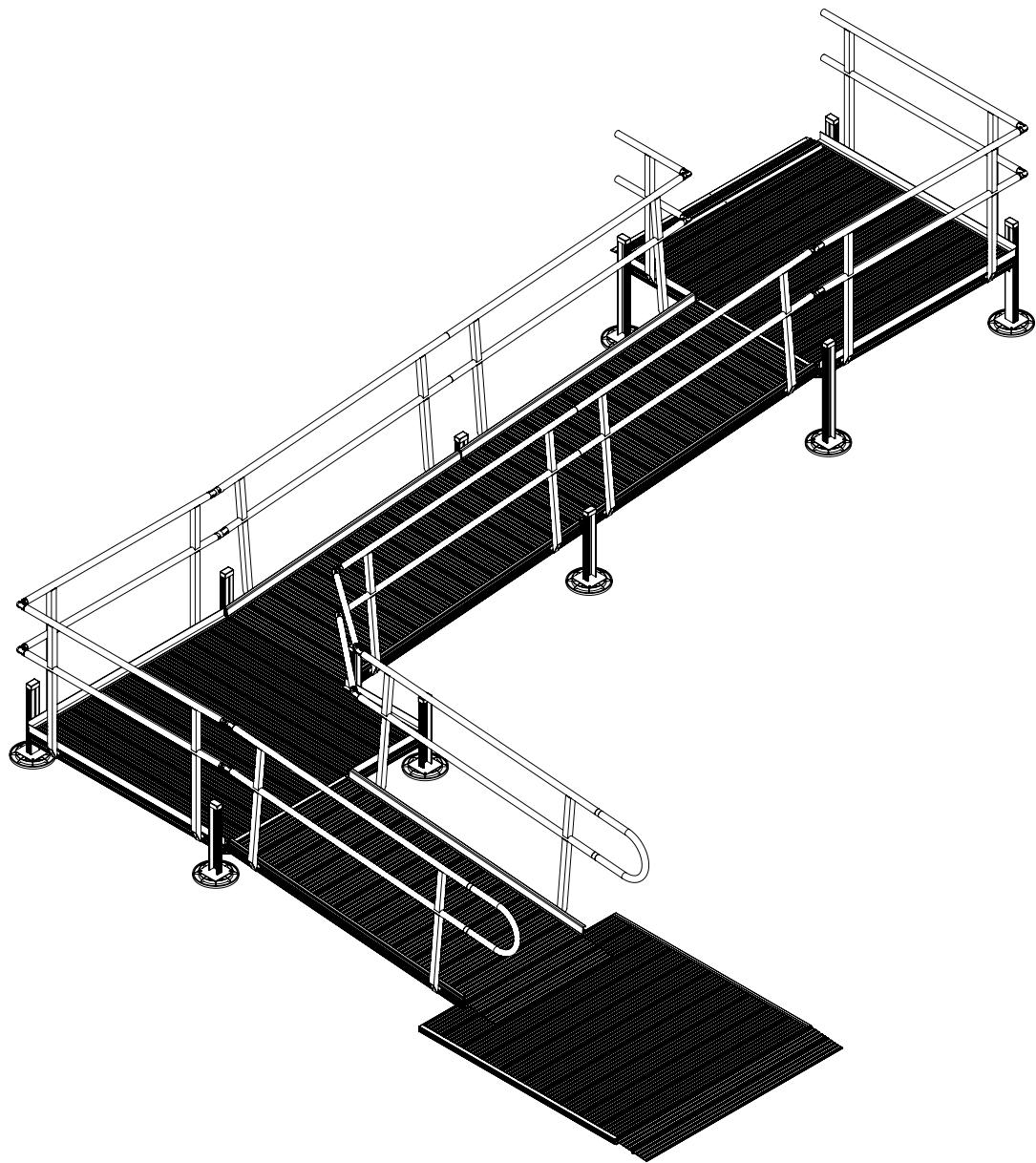
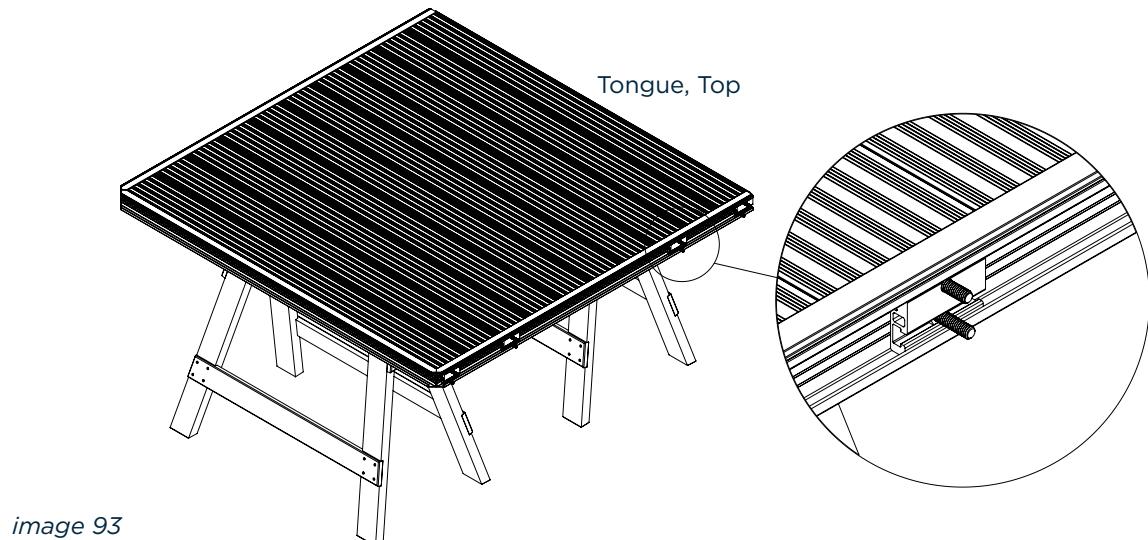


image 92

## 20.1 ▶ Set the starting 5'x5' platform.

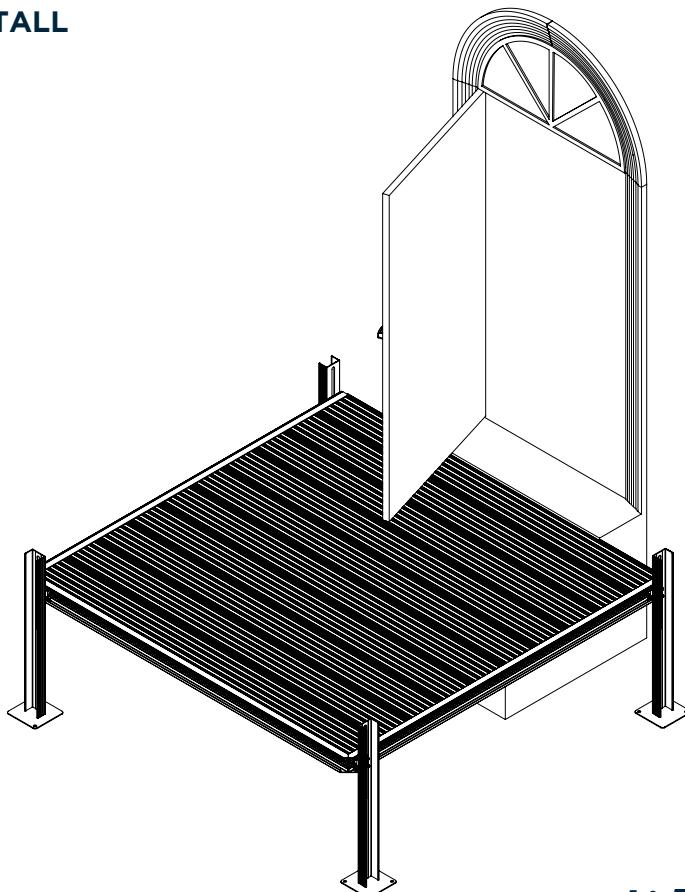
**20.1.1.** Place the platform upright on sawhorses, with the tongue side facing forwards. Attach universal brackets and bolts for the two (2) sets of handrails and four (4) legs, plus one (1) for the T-Post which will be located on the inside corner.



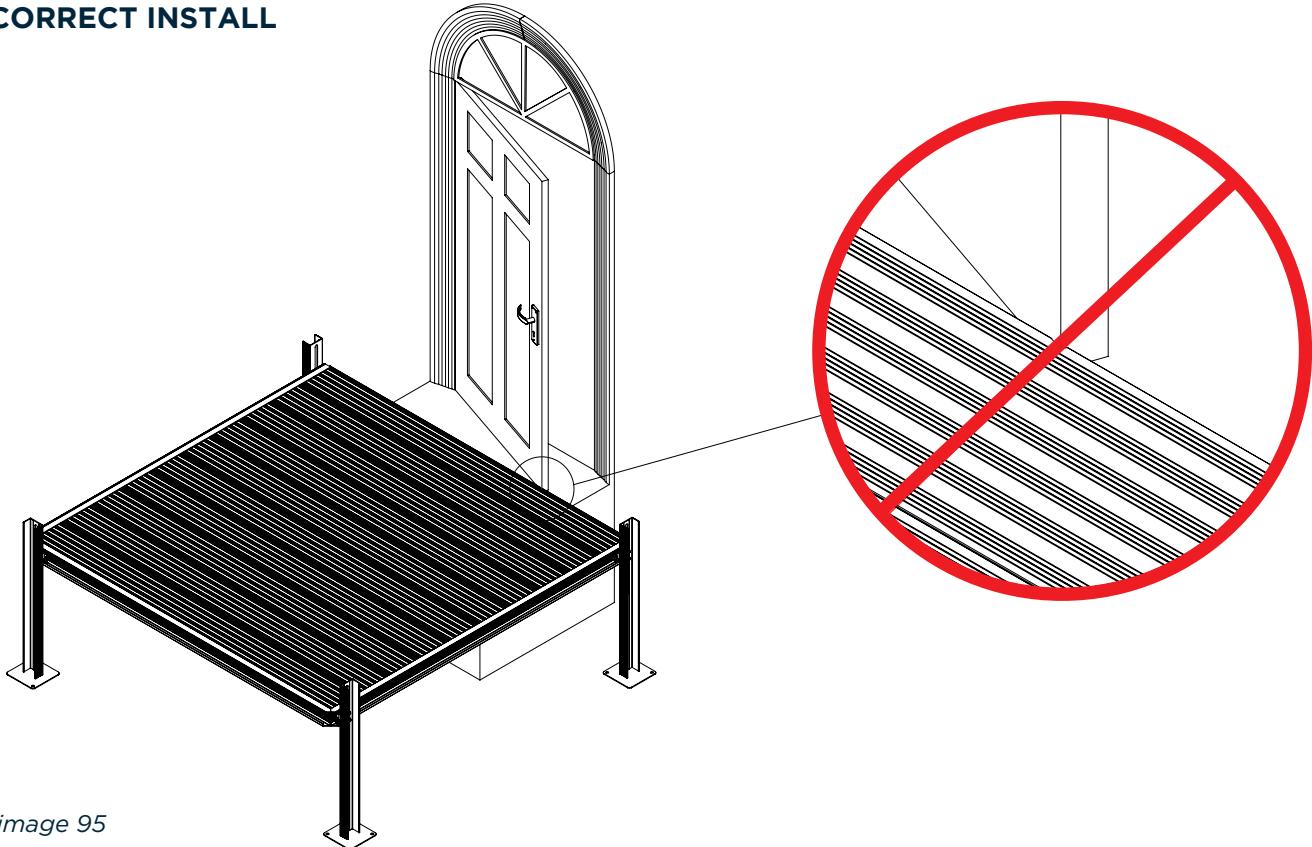
**20.1.2.** Mount the handrails and T-Post, hand-tightening the bolts to allow for later adjustments.

**20.1.3.** Measure the starting leg heights, from the platform's travel surface to the ground or Celebration Footer Pad™ making sure the platform sits just below the door threshold.

### CORRECT INSTALL



## INCORRECT INSTALL

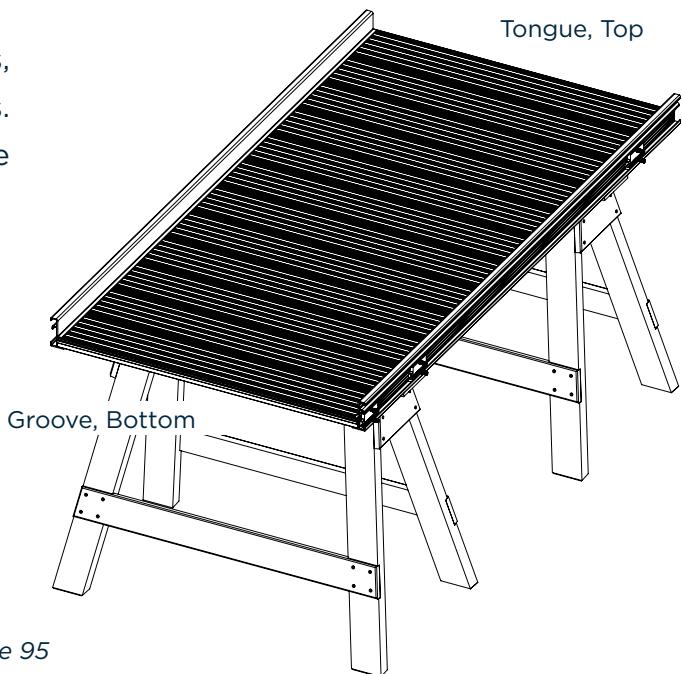


**20.1.14.** Select the shortest leg that is at least 2" above the measured height, and mount legs to the platform – snug the bolts, tightening enough to support the weight of the platform, but without over-tightening.

**20.1.15.** Carry over platform to starting position. Double-check door clearance, and use level to ensure the platform is level, at the correct height, and the legs are plumb.

## 20.2 ▶ Set the first 6' ramp section.

**20.2.1.** Place the section upright on sawhorses, with the tongue side facing forwards. Attach universal brackets and bolts for the handrails and legs.



- 20.2.2.** Mount the handrails, hand-tightening the bolts to allow for later adjustments.
- 20.2.3.** Determine the leg height. For a 1:12 pitch ramp, it's 6" less than the platform height.
- 20.2.4.** Select the shortest leg that is at least 2" above the measured height, and mount the legs to the ramp – snug the bolts without over-tightening.
- 20.2.5.** Carry the ramp section over and attach the tongue side into the groove of the platform.
- 20.2.6.** Using the level, adjust the legs, so the ramp section is level across the width of the ramp, at the appropriate slope, and the legs are plumb.

## 20.3 ▶ Set the second 6' ramp section.

Repeat all of **Step 20.2**

## 20.4 ▶ Set the 5'x5' turn platform.

- 20.4.1.** Place the platform upright on sawhorses, with the tongue side facing forwards. Attach universal brackets and bolts for the two (2) sets of handrails and three (3) legs needed for this platform. If a T-Post will be used for the corner handrails, insert a universal bracket for the T-Post.
- 20.4.2.** Select the shortest leg that is at least 2" above the measured height, and mount the handrails and T-Post, hand-tightening the bolts to allow for later adjustments.
- 20.4.3.** Measure the leg heights.
- 20.4.4.** Mount the legs to the platform – snug the bolts without over-tightening.
- 20.4.5.** Carry the platform over and attach the tongue side into the groove of the ramp section.
- 20.4.6.** Using the level, adjust the legs so the platform is level, at the correct height and the legs are plumb.



### TIPS AND TRICKS

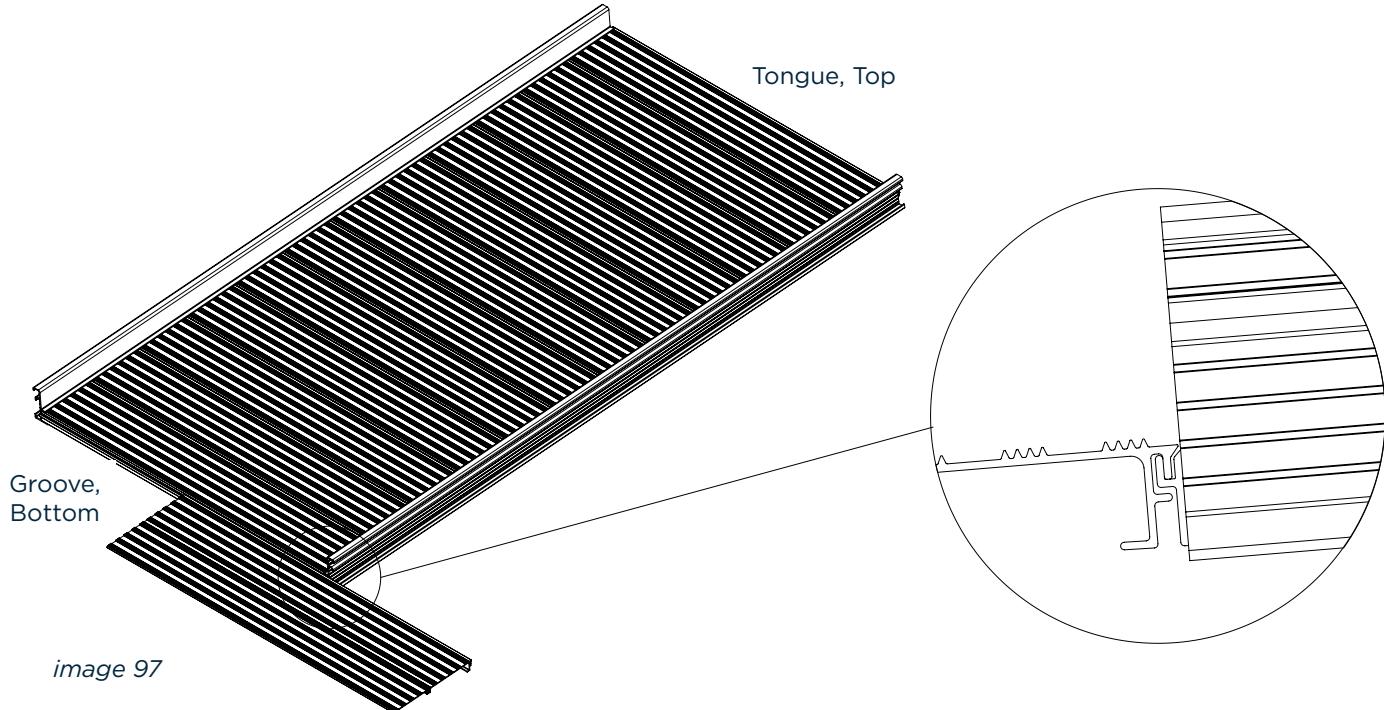
The platform can be installed at up to a 1° angle cross slope (1/4" per foot) to allow for rain runoff.

- 20.4.7.** Install Toe Guards. Place toe guards at the two (2) outside corners of the platform, and affix each with two driller screws.

## 20.5 ▶ Set the final 6' ramp section and 1' BTP.

**20.5.1.** Place the section upright on sawhorses, with the tongue side facing forwards.

**20.5.2.** Slide the Bottom Transition Plate (BTP) into the groove end of the ramp section.



**20.5.3.** Attach universal brackets and bolts for the two (2) sets of handrails needed for this final section.



### TIPS AND TRICKS

Legs are not needed unless there is a cross slope requiring a leg on one side to level the ramp section across the width.

**20.5.4.** Mount the handrails, hand-tightening the bolts to allow for later adjustments.

**20.5.5.** Carry the ramp section over and attach the tongue side into the groove of the platform.

**20.5.6.** Using a level, make sure the ramp section is level across the ramp and at the correct slope. Make sure the BTP is fully supported and firmly on the ground across its length.

## 20.6 ▶ Install the landing pad.

- 20.6.1.** Slide the 60" BTP into the end of the landing pad.
- 20.6.2.** Lay the landing pad under the end of the last ramp section, so the ramp BTP is squarely on the landing pad. The landing pad BTP should face the exit direction of the ramp.

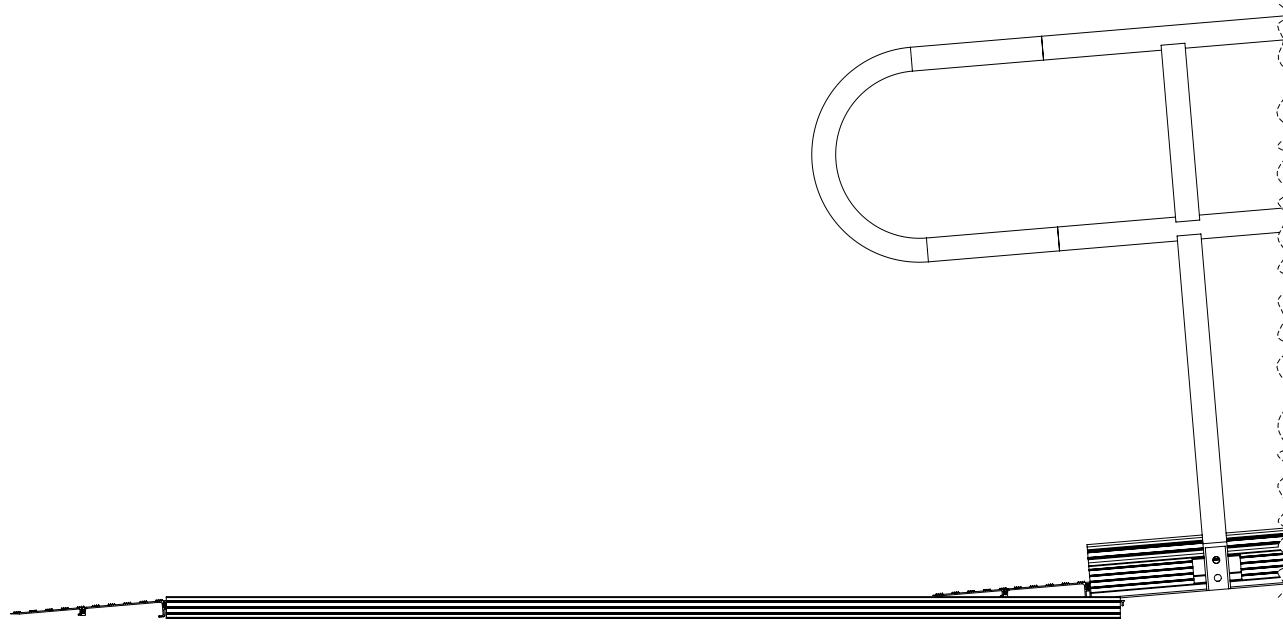


image 98

- 20.6.3.** Make sure that the landing pad doesn't wobble. Pack dirt or gravel underneath the landing pad if needed to keep it level and supported.

## 20.7 ▶ Check ramp components are correctly placed before final adjustments.

- 20.7.1.** Confirm the pitch is correct with a laser level, and use a string to check that the slope is consistent within ramp runs.
- 20.7.2.** Stretch the string from the top of the first 6' section to the bottom of the second 6' section between platforms. The ramp sections should follow the string.

## 20.8 ▶ After confirming all legs are plumb, tighten all the leg bolts.

## 20.9 ▶ Starting at the top of the outside of the ramp, and working down, connect and tighten all handrails.

### 20.9.1. Tighten the handrail bolts on the starting platform, then insert the corner elbows.

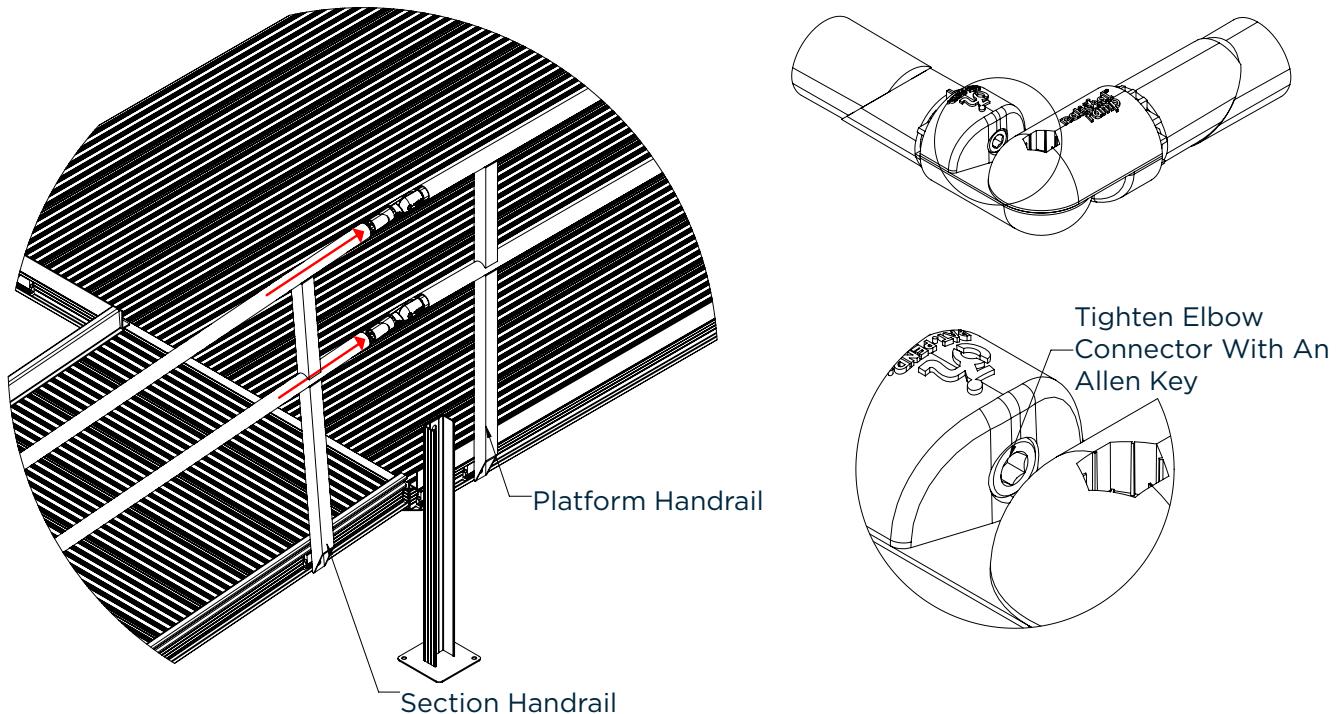


image 99

**20.9.1.1.** Remove the two halves of the elbow from the packaging. One half will have the nut and bolt to join the two halves.

**20.9.1.2.** Insert first half of the elbow into top adjoining handrail.

**20.9.1.3.** Lock elbow into handrail by tightening Allen bolt (clockwise).

**20.9.1.4.** Repeat for second half of elbow to bottom adjoining handrail.

**20.9.1.5.** Check alignment and join two elbow halves using provided bolt and nut.

**20.9.1.6.** Once everything is aligned, tighten bolt to join two elbow halves.

### 20.9.2. Measure and cut handrails at starting section.

**20.9.2.1.** Align the handrails on the seam with the longer ramp handrails up towards the platform. Place the edge of the elbow against the fixed platform handrail and mark the top and lower ramp handrails where they will need to be cut.

**20.9.2.2.** Cut the handrails using a pipe cutter, double checking there are no burrs left.

**20.9.2.3.** Insert the elbow between the platform and section handrails and tighten.

**20.9.3.** Connect section handrails

**20.9.4.** Insert the straight connector into the top section handrail and slide the next section handrail up into the handrail connector.

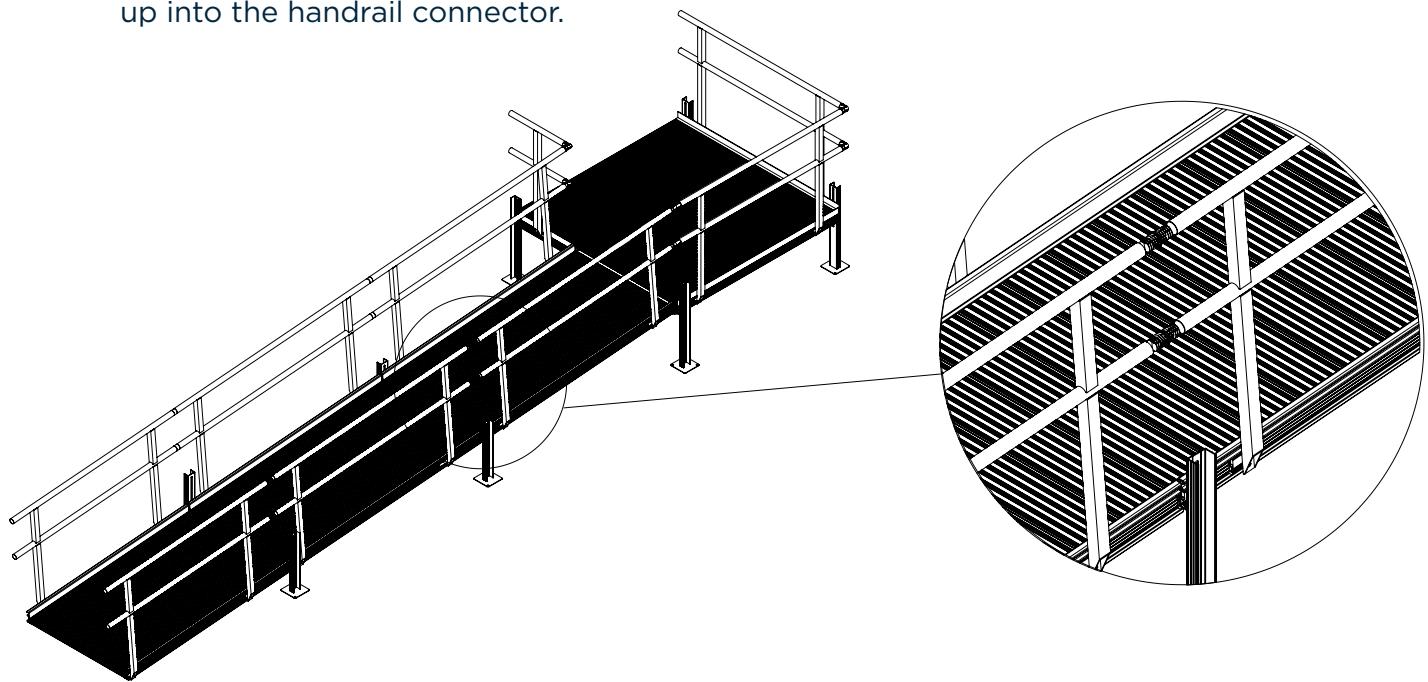


image 100

**20.9.5.** Tighten the handrails on the last ramp section.

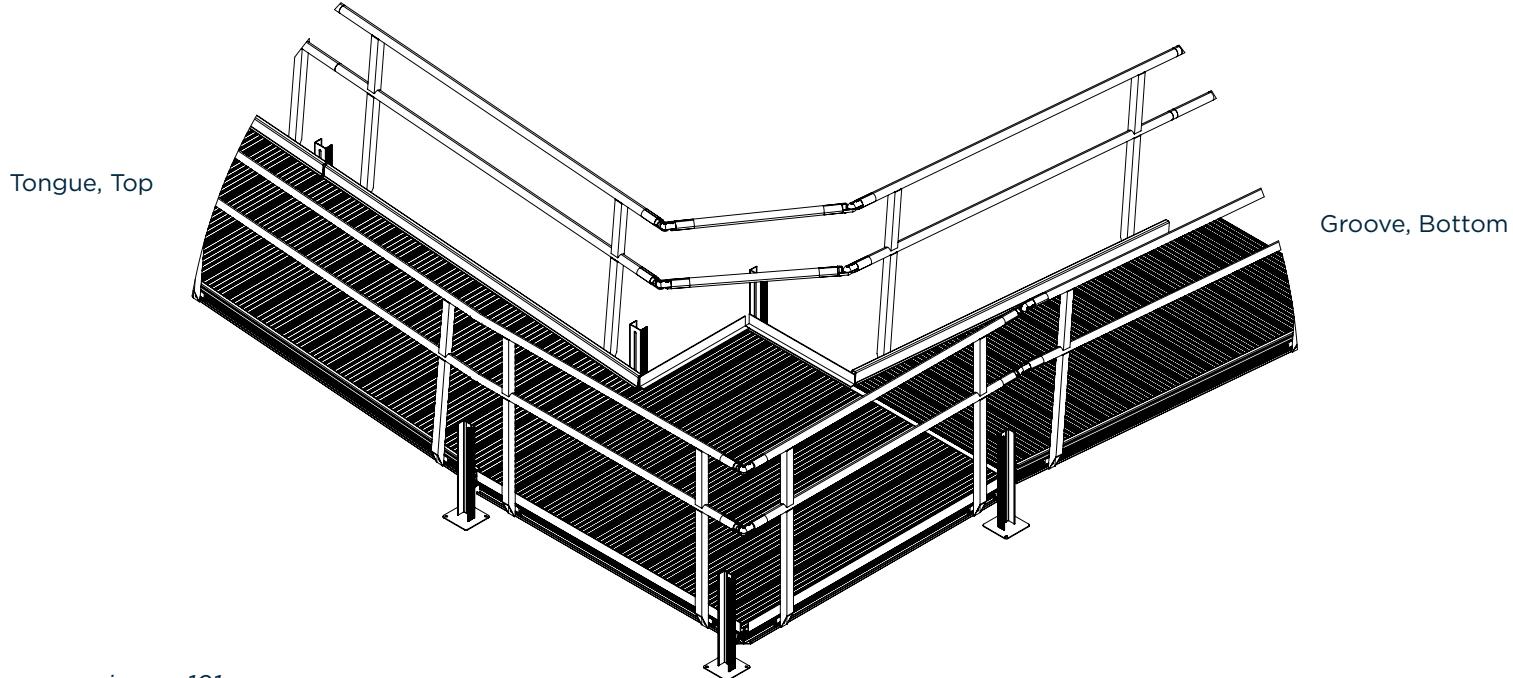
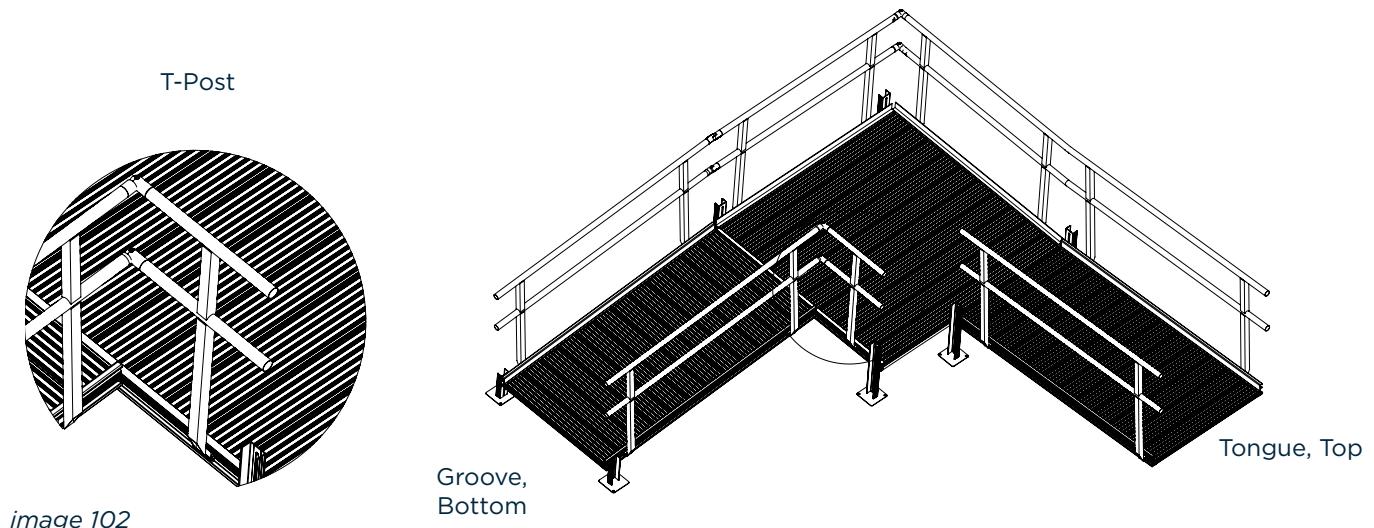
**20.10 ▶ Corner handrail options for 5'x5' turn platforms****20.10.1. Option 1 ▶ Diagonal railing using elbows**

image 101

- 20.10.1.1.** Line up a 4' level on the end of each ramp section vertically, making sure it is plumb, and make cut marks on the top and bottom of each handrail.
- 20.10.1.2.** Cut the handrails using the pipe cutter, clearing any burrs.
- 20.10.1.3.** Attach the elbows to both handrails and point the loose ends towards each other.
- 20.10.1.4.** Line up filler pipe with the elbow on one side, scoring the cut mark on the other side. Repeat this for the lower handrail.
- 20.10.1.5.** Cut the pieces of filler pipe and attach it between the handrails.

## 20.10.2. Option 2 ▶ T-post



- 20.10.2.1.** Install the vertical support of the T-Post as close to the corner as possible.
- 20.10.2.2.** Starting with the inside corner of the T-post, insert elbows into the ramp handrails, and measure the cut mark on the T-post.
- 20.10.2.3.** Cut the handrails using the pipe cutter and connect the elbows after clearing any burrs.
- 20.10.2.4.** Insert elbows on the outside corner of the T-Post and ramp handrails, and measure filler pipe to fit between the elbows, using a right angle or triangle to make sure the railings will be at 90°.
- 20.10.2.5.** Cut the handrails using the pipe cutter and connect the elbows after clearing any burrs.

**20.10.6.** Repeat the process for the interior handrails, starting with the T-Post on the starting platform.

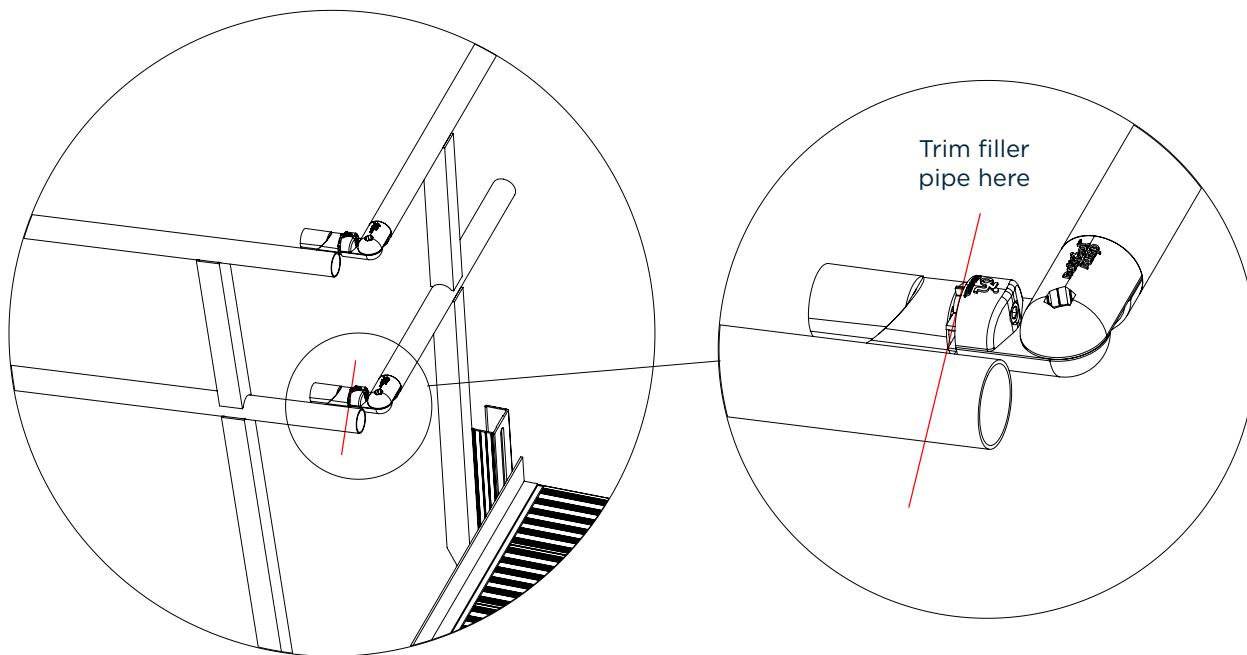


image 103

**20.10.7.** Once all the handrails are connected, mount the end loops.

**20.10.7.1.** Insert the metal rail connector into the top and bottom of each handrail end, with the set screw facing the ground.

**20.10.7.2.** Fit the end loops onto the other end of the metal rail connector.

**20.10.7.3.** Make sure the connector and handrail are aligned to prevent sharp edges before tightening with an Allen key.

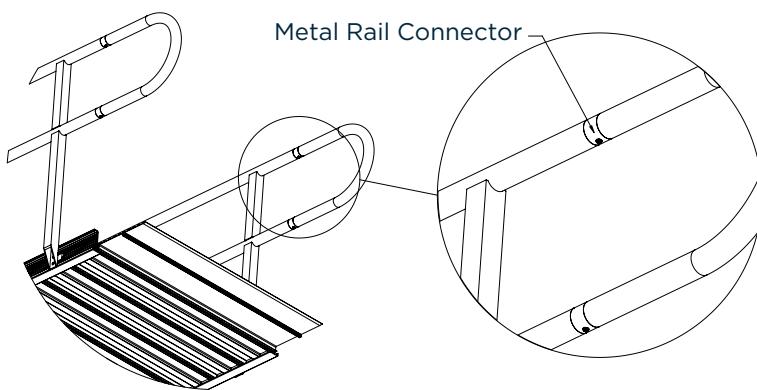
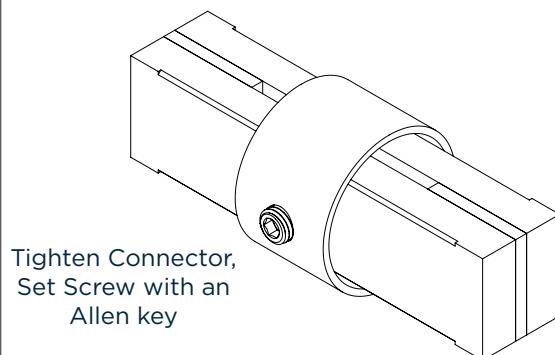


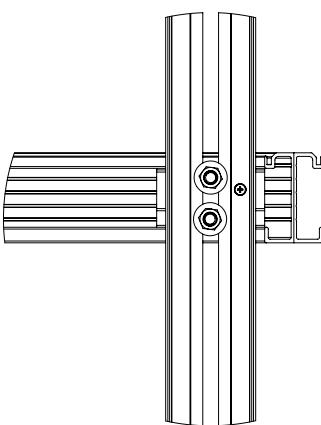
image 104



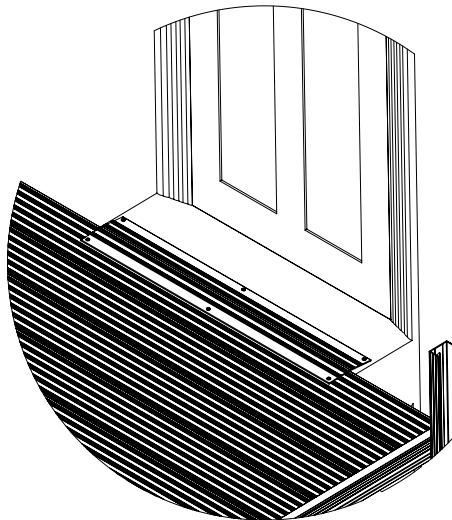
\*NOTE: Always install connector with set screw facing ground

## 20.11 ▶ Final Touches to Ramp

**20.11.1.** Predrill and place driller screws into each leg to lock into place. Ensure flange nut is tight to secure leg.



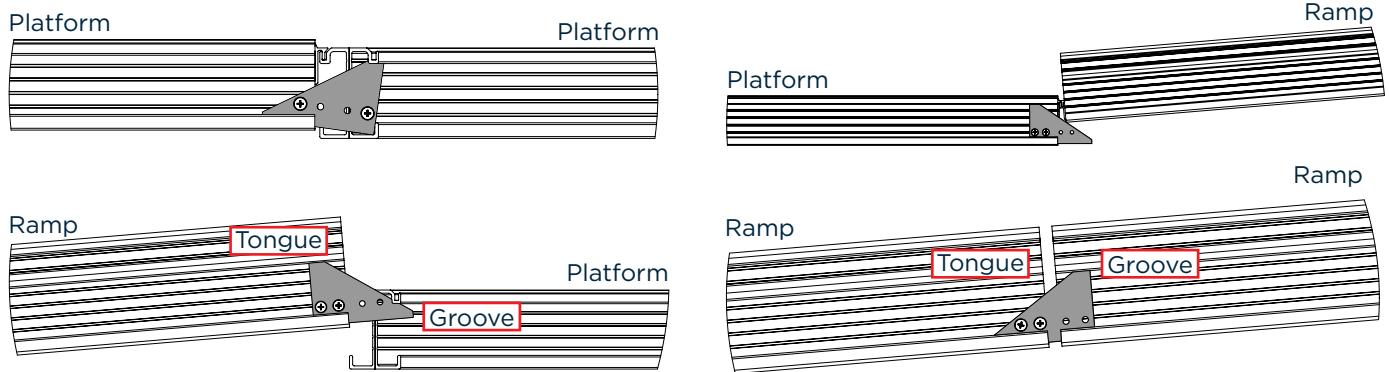
**20.11.2.** Center TTP on top of the starting ramp section or platform and the door threshold or porch, securing with driller screws.



**20.11.3.** Install all Ramp and Platform Brackets.

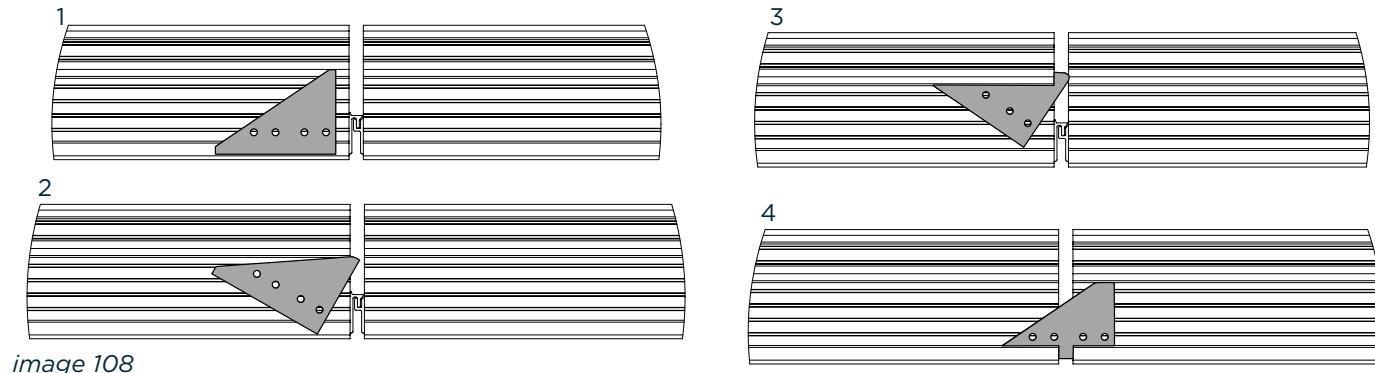
National Ramp requires installing all Ramp and Platform Brackets to ensure the safety and security of the ramp system. Install these brackets on both sides of the ramp.

Use the below chart to determine how to position the bracket and which holes to drill for each configuration.



**20.11.4.** Orient the bracket according to the configuration being installed, taking special note of the tongue and groove orientation.

**20.11.5.** Rotate the bracket about 30° to insert into the section side channel.



**20.11.6.** Fasten bracket into the side channel using driller screws (pre-drill to ease installation), confirming the bracket holes to be used per the chart.

**20.11.7.** Pull/push up on the tongue side of the section to verify the bracket install. A successful install will not allow the tongue to disengage from the groove.

**20.11.8.** Place all leg caps, corner guards and end caps needed.

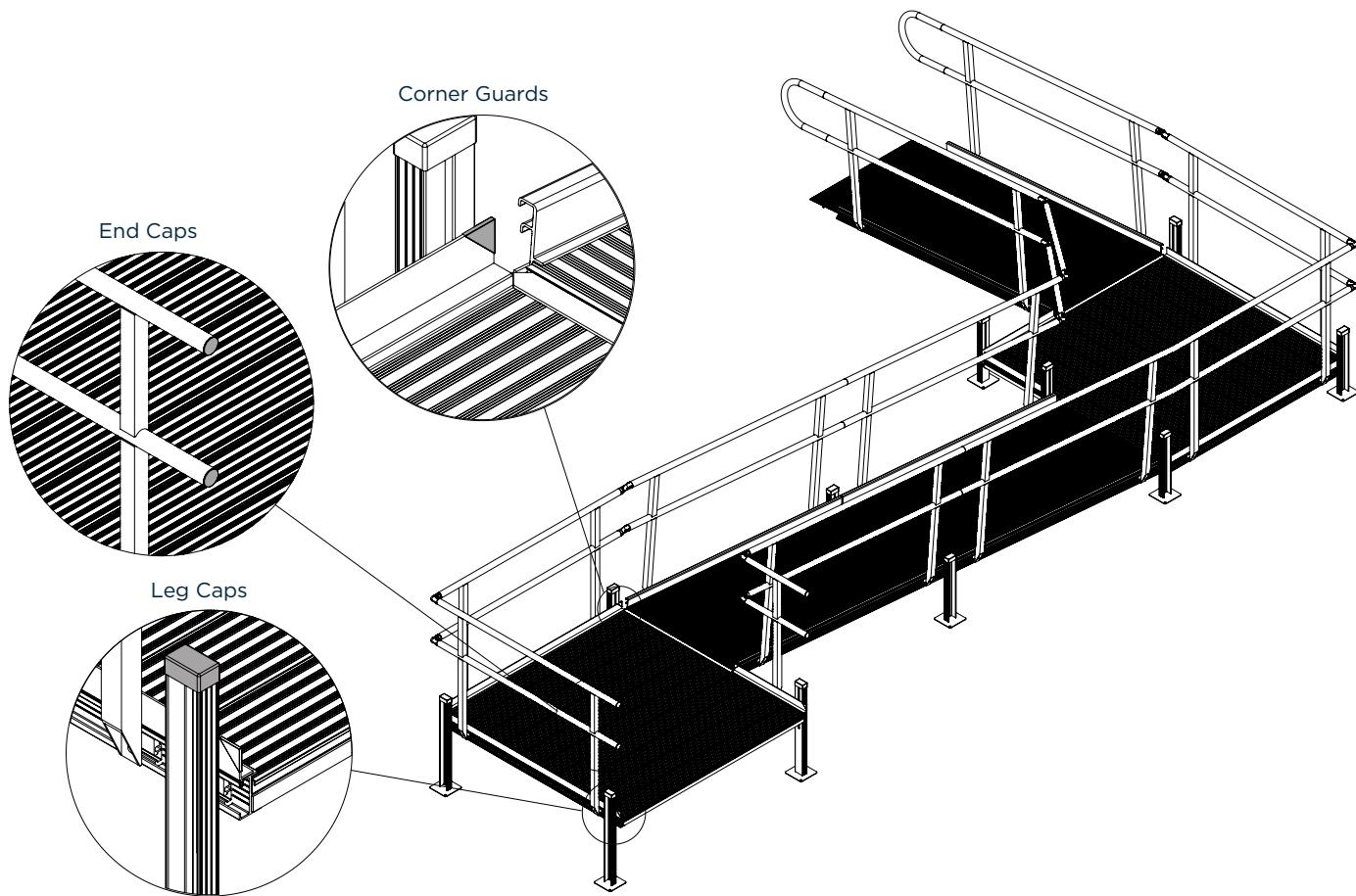


image 109

**20.11.9.** Once all components are tightened, walk and jump up and down the ramp to make sure the ramp feels secure. Run your hands across all railings to check for any sharp edges or burrs.

**20.11.10.** Have the ramp user(s) traverse the ramp to make sure they feel comfortable and are happy with the result, before reviewing maintenance and care.

## 21. Layout Configuration 2 | Switchback Ramp

5'x5' starting platform at the door, turning 12' to the right to a 5'x5' platform, turning left to another 5'x5' platform (creating a 5x10 switchback platform), with a final 7' of ramping to the ground. Overall height is 19".

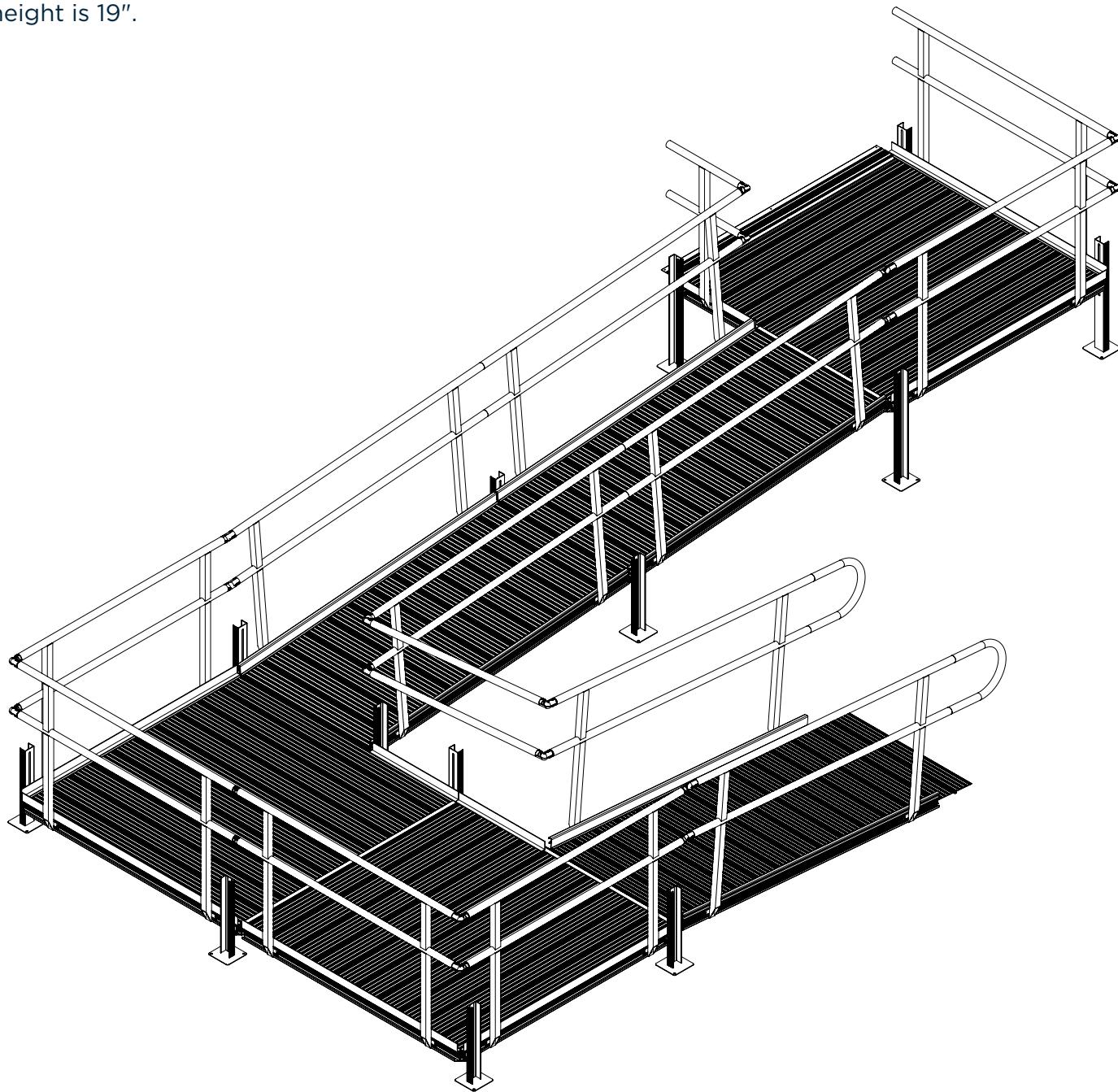
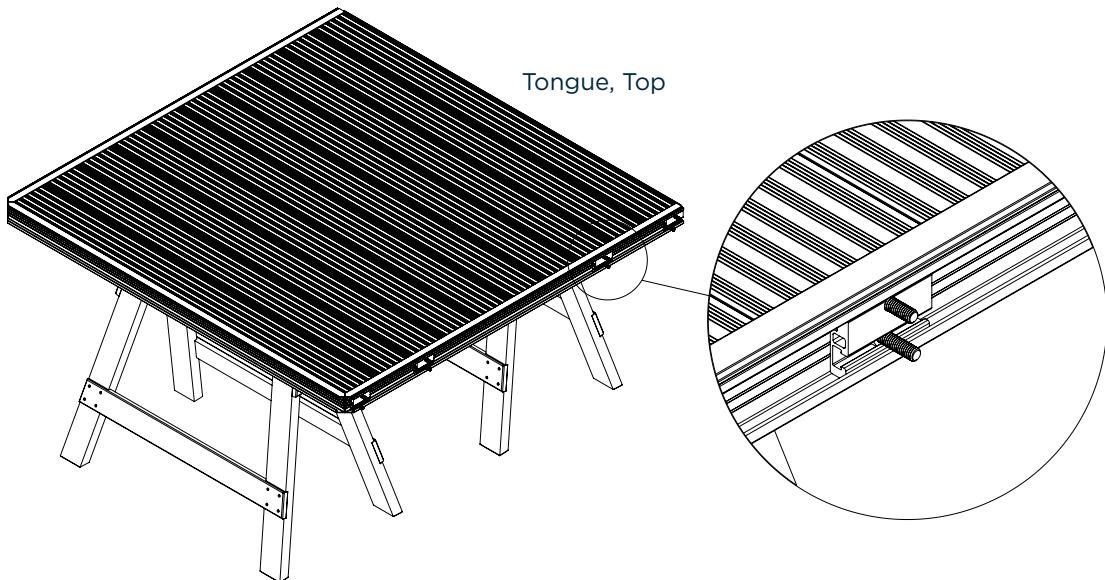


image 110

## 21.1 ▶ Set the starting 5'x5' platform.

**21.1.1.** Place the platform upright on sawhorses, with the tongue side facing forwards. Attach universal brackets and bolts for the two (2) sets of handrails and four (4) legs, plus one (1) for the T-Post which will be located on the inside corner.

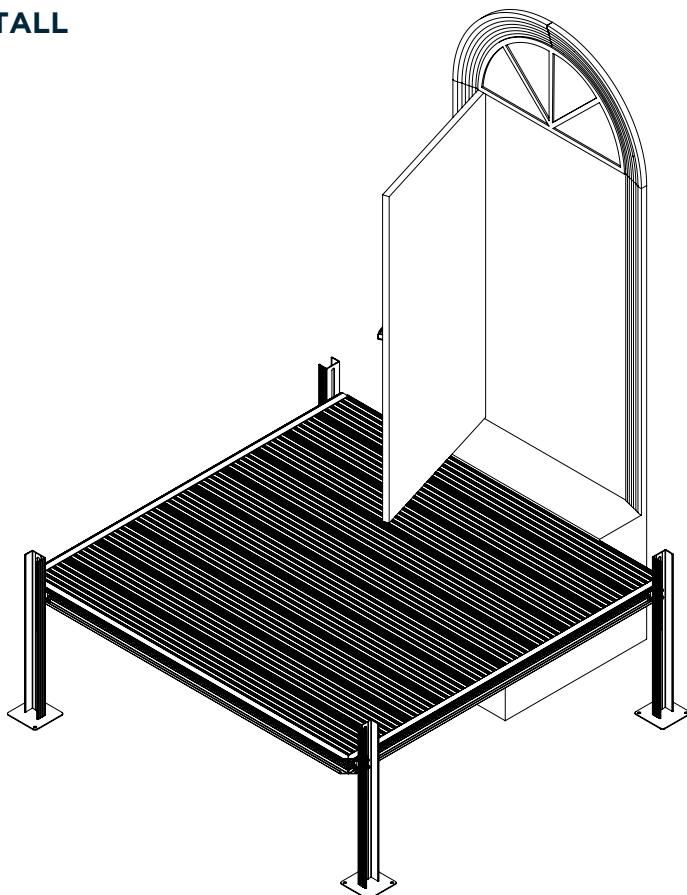


*image 111*

**21.1.2.** Mount the handrails and T-Post, hand-tightening the bolts to allow for later adjustments.

**21.1.3.** Measure the starting leg heights, from the platform's travel surface to the ground or Celebration Footer Pad™, making sure the platform sits just below the door threshold.

### **CORRECT INSTALL**



*image 112*

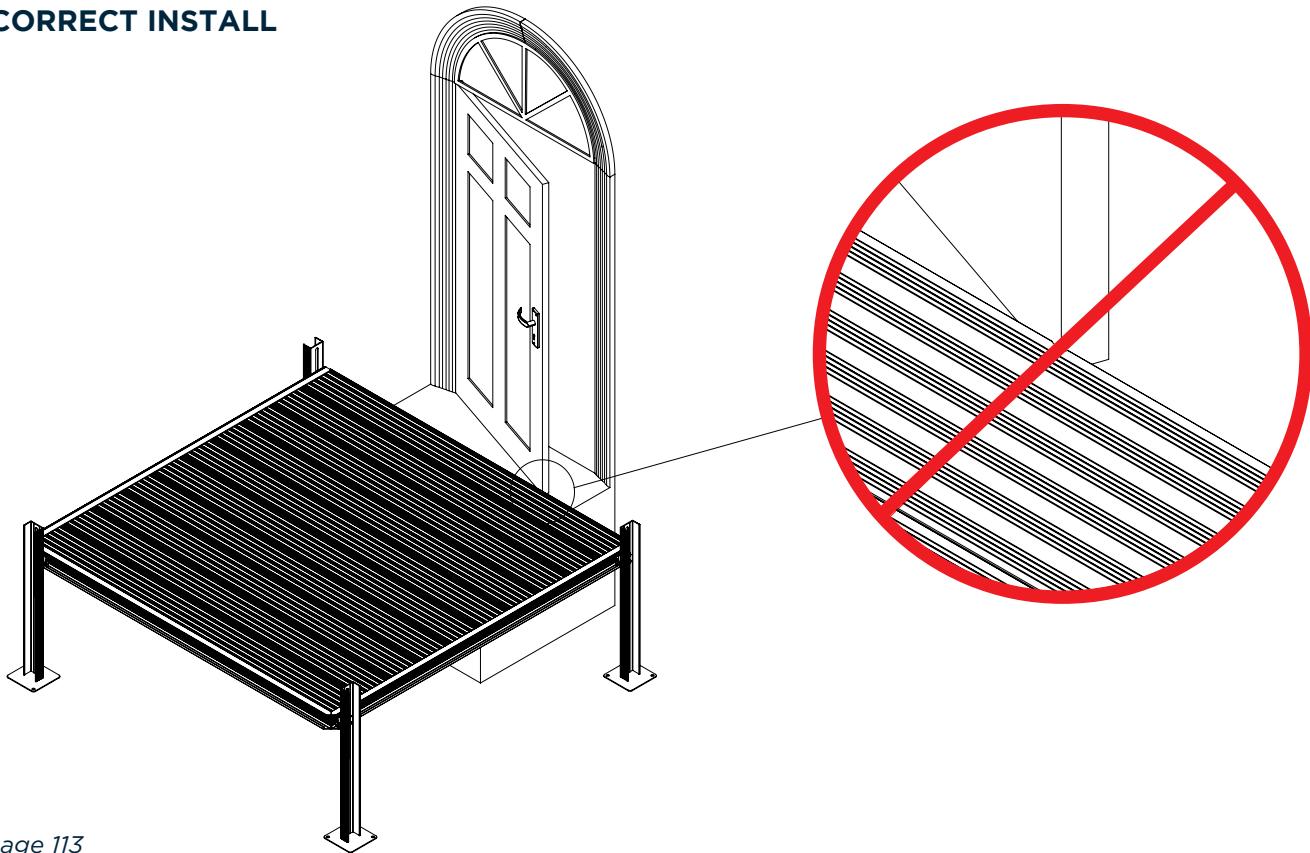
**INCORRECT INSTALL**

image 113

- 21.1.4.** Select the shortest leg that is at least 2" above the measured height, and mount legs to platform – snug the bolts without over-tightening.
- 21.1.5.** Carry over platform to the starting position. Double-check door clearance, and use a level to ensure the platform is level, at the correct height, and the legs are plumb.

**21.2 ▶ Set the first 6' section.**

- 21.2.1.** Place the section upright on sawhorses, with the tongue side facing forwards. Attach universal brackets and bolts for the handrails and legs.
- 21.2.2.** Mount the handrails, hand-tightening the bolts to allow for later adjustments.
- 21.2.3.** Determine the leg height. For a 1:12 pitch ramp, the leg height is 6" less than the platform height.



image 114

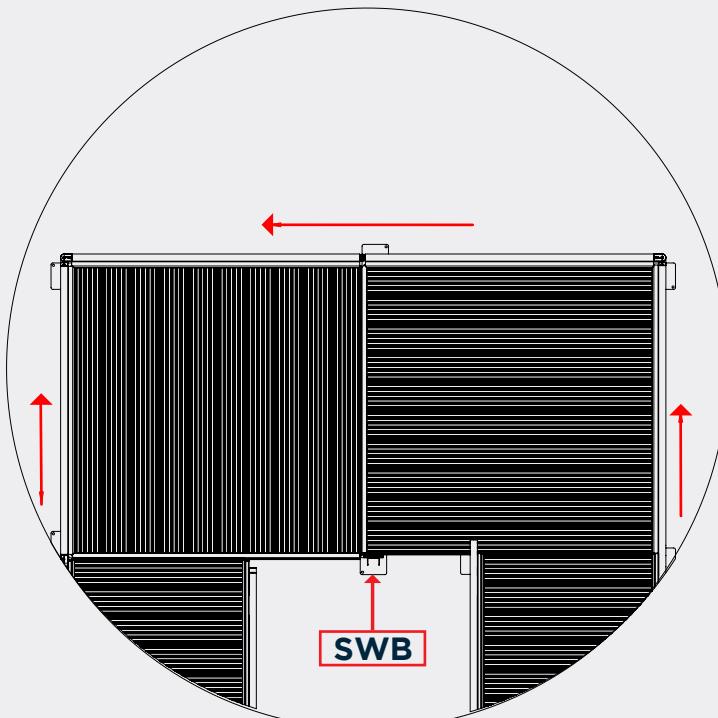
- 21.2.4. Mount the legs to the desired height – snug the bolts without over-tightening.
- 21.2.5. Carry the ramp section over and attach the tongue side into the groove of the platform.
- 21.2.6. Using the level, adjust the legs so the ramp section is level across the ramp, at the appropriate slope, and the legs are plumb.

## 21.3 ▶ Set the second 6' section.

Repeat all of **Step 21.2**

**TIPS AND TRICKS**

The planking will change directions on a switchback platform.



*image 115*

While this configuration is composed of two 5'x5' platforms, when installing a 5'x8' switchback ramp, it must start with a 4'x5' platform and then a 5'x4'.

### **SWB** SWITCHBACK BRACKET

## 21.4 ▶ Set the first 5'x5' turn platform.

- 21.4.1. Place the platform upright on sawhorses, with the tongue side facing forwards. Attach universal brackets and bolts for the two (2) sets of handrails and two (2) of the three (3) legs needed for this platform. (The switchback bracket will need to be added to hold the third leg).

**21.4.3.** Measure the leg heights.

**21.4.4.** Mount the legs to the platform – snug the bolts without over-tightening.

**21.4.5.** Carry the platform over and attach the tongue side into the groove of the ramp section.

**21.4.6.** Using the level, adjust the legs so the platform is level, at the correct height and the legs are plumb.



#### TIPS AND TRICKS

While it is recommended for the platform to be installed completely level, the platform can be installed at up to a 1° angle to allow for rain runoff.

**21.4.7.** Insert the switchback bracket with bolts into the inside corner of the platform coming off the ramp. Using the holes in the switchback bracket as a guide, drill into the groove section of the platform.

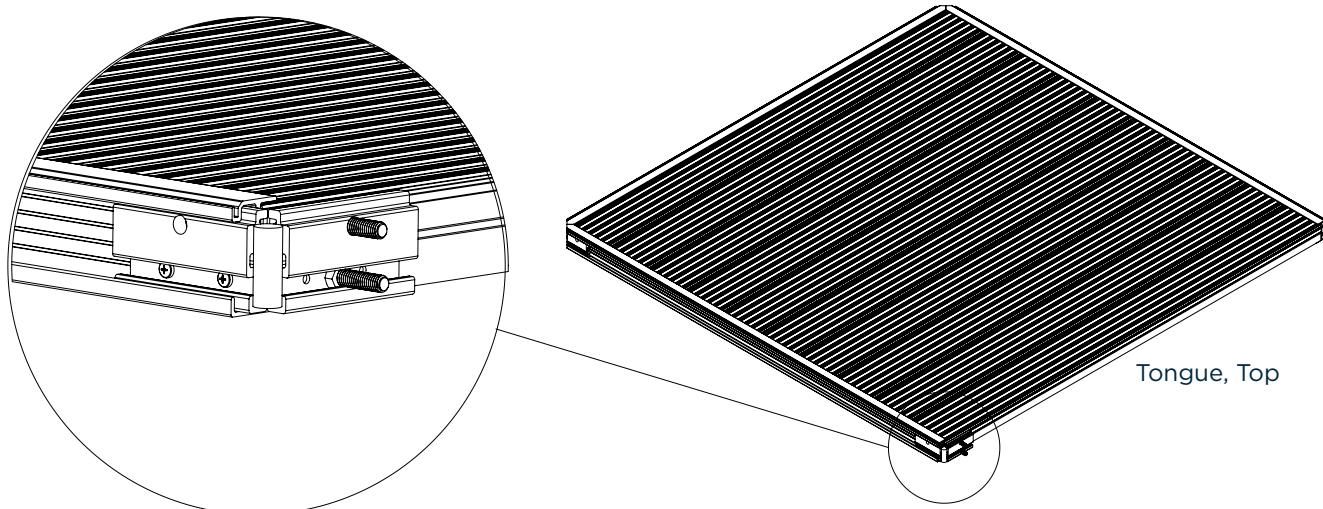


image 116

**21.4.8.** Mount the leg to the bolts of the switchback bracket.

### 21.5 ▶ Set the second 5'x5' turn platform.

**21.5.1.** Repeat steps 1-6 of Step 4; however, there will only be two (2) legs placed opposite the tongue.

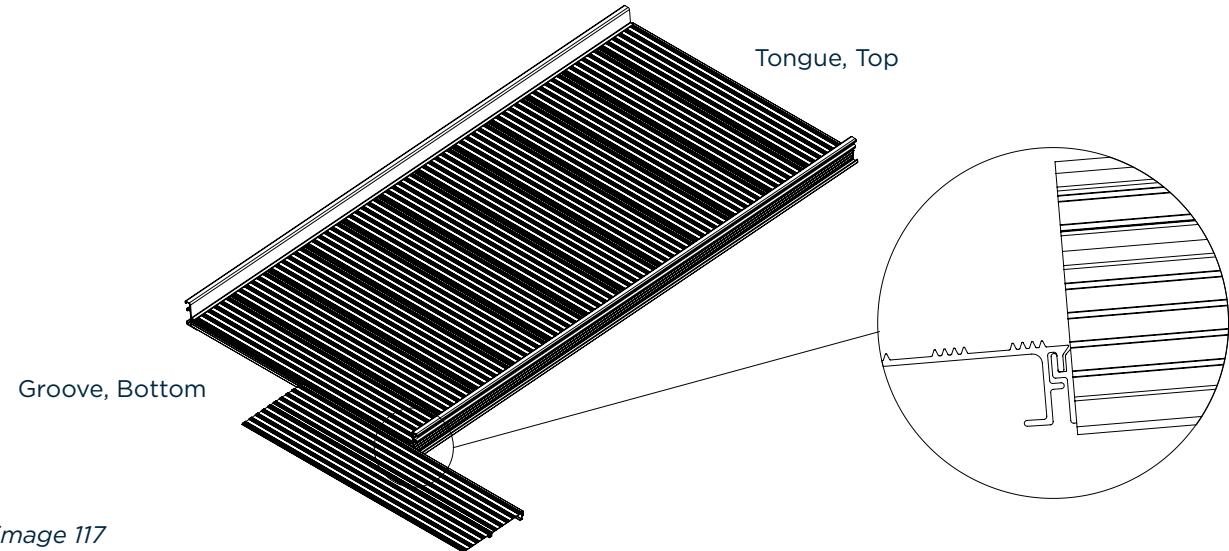
**21.5.2.** Install toe guards. Place toe guards along the inside edges of the platform, and affix each with two (2) driller screws.

## 21.6 ▶ Set the final 6' section.

**21.6.1.** Place the section upright on sawhorses, with the tongue side facing forwards. Attach universal brackets and bolts for the two (2) sets of handrails needed for this final section.

Legs are not needed unless there is a cross slope requiring a leg on one side to level the ramp section across the width.

**21.6.2.** Slide the Bottom Transition Plate (BTP) into the groove end of the ramp section.



**21.6.3.** Carry the ramp section over and attach the tongue side into the groove of the platform.

**21.6.4.** Using a level, make sure the ramp section is level across the ramp and at the correct slope. Make sure the BTP is fully supported and firmly on the ground across its length.

## 21.7 ▶ Check ramp components are correctly placed before final adjustments.

**21.7.1.** Confirm the pitch is correct and the slope is consistent within ramp runs. If a level is unavailable, check with a string.

**21.7.2.** Stretch the string from the top of the first 6' section to the bottom of the second 6' section between platforms. The ramp sections should follow the string.

## 21.8 ▶ After confirming all legs are plumb, tighten all the leg bolts.

## 21.9 ▶ Starting at the top of the outside of the ramp, and working down, begin tightening all handrails.

### 21.9.1. Tighten the handrail bolts on the starting platform, then insert the corner elbows.

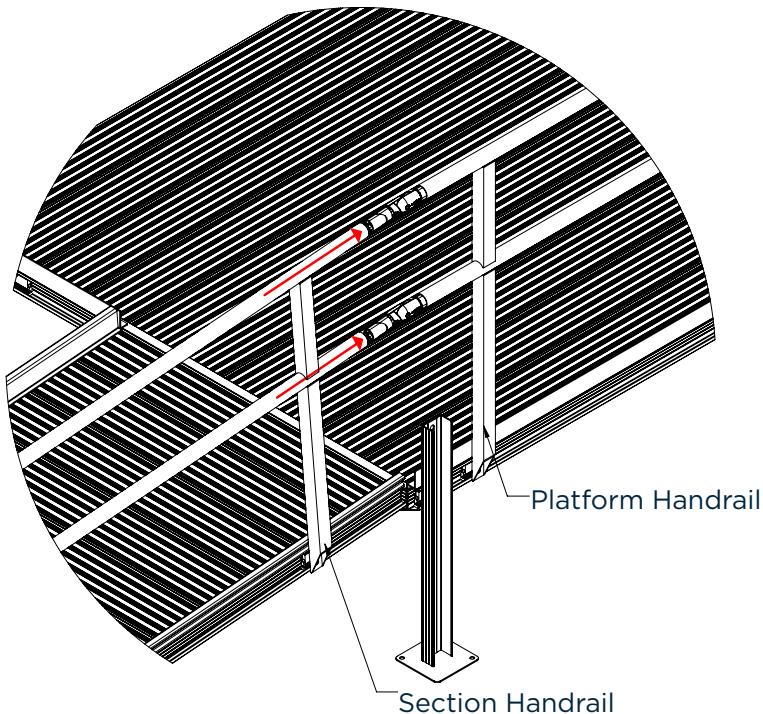
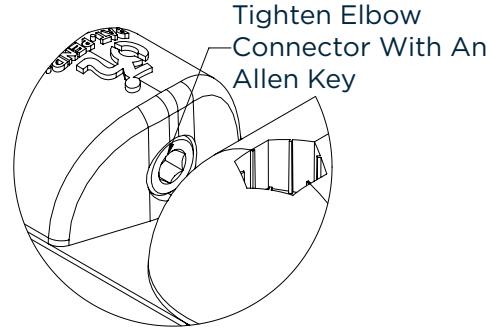
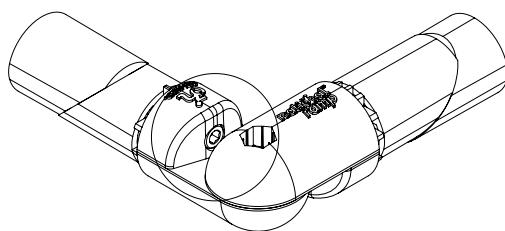


image 118



**21.9.1.1.** Remove the two (2) halves of the elbow from the packaging. One half will have the nut and bolt to join the two halves.

**21.9.1.2.** Insert first half of the elbow into top adjoining handrail.

**21.9.1.3.** Lock elbow into handrail by tightening Allen bolt (clockwise).

**21.9.1.4.** Repeat for second half of elbow to bottom adjoining handrail.

**21.9.1.5.** Check alignment and join two (2) elbow halves using provided bolt and nut.

**21.9.1.6.** Once everything is aligned, tighten bolt to join two (2) elbow halves.

**21.9.2.** Measure and cut for handrails at starting section.

**21.9.3.** Align the handrails on the seam with the longer ramp handrails up towards the platform. Place the edge of the elbow against the fixed platform handrail and mark the top and lower ramp handrails.

**21.9.4.** Cut the handrails using a pipe cutter, double checking there are no burrs left.

**21.9.5.** Insert the elbow between the platform and section handrails and tighten.

**21.9.6.** Connect section handrails

**21.9.7.** Insert the straight connector into the top section handrail and slide the next section handrail up into the handrail connector.

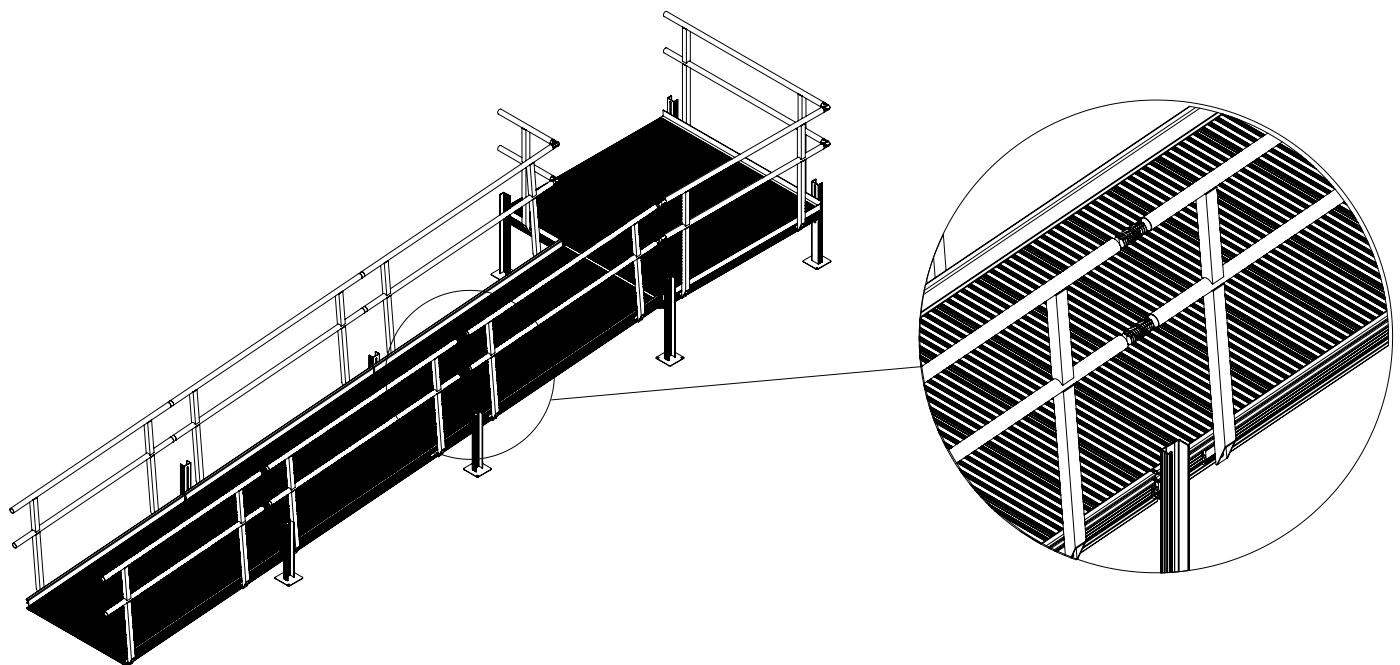


image 117

**21.9.8.** Tighten the handrails on the last ramp section.

**21.9.9.** Repeat the process for the interior handrails, starting with the T-Post on the starting platform.

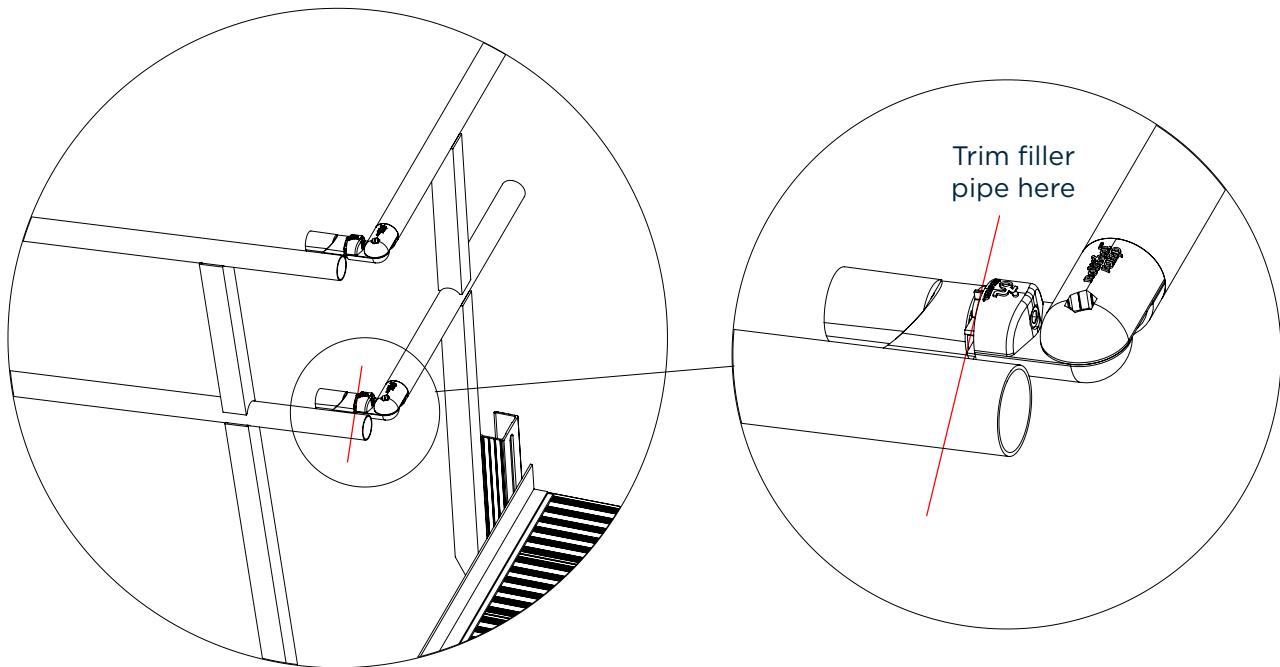


image 120

**21.9.10.** Once all the handrails are connected, mount the end loops.

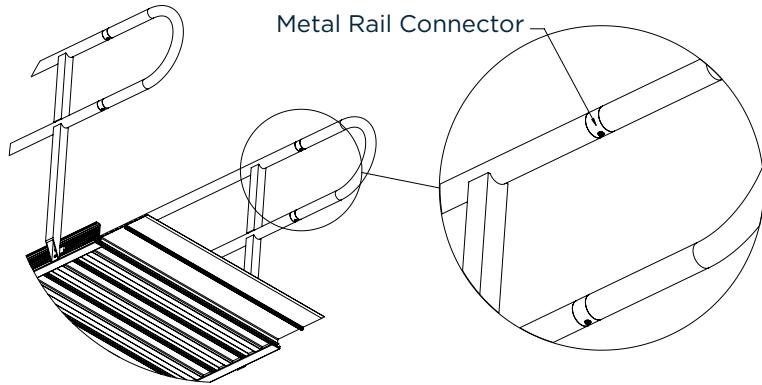
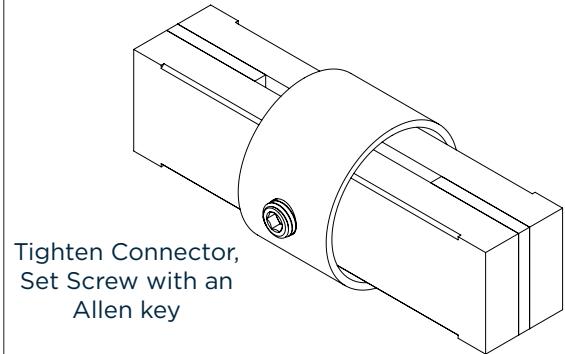


image 121



\*NOTE: Always install connector with set screw facing ground

- 21.9.10.1.** Insert the metal rail connector into the top and bottom of each handrail end, with the set screw facing the ground.
- 21.9.10.2.** Fit the end loops onto the other end of the metal rail connector.
- 21.9.10.3.** Make sure the connector and handrail are aligned to prevent sharp edges before tightening with an Allen key.

## 21.10 ▶ Final touches to ramp

- 21.10.1.** Predrill and place driller screws into each leg to lock into place. Ensure flange nut is tight to secure leg.

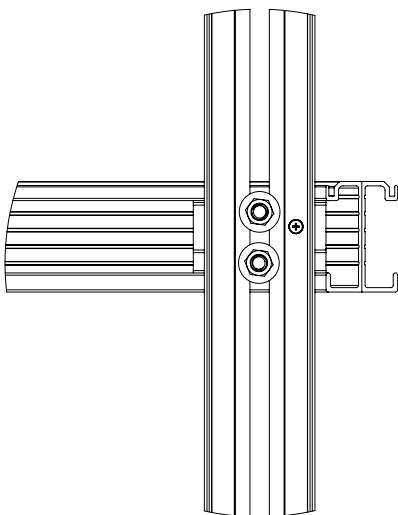
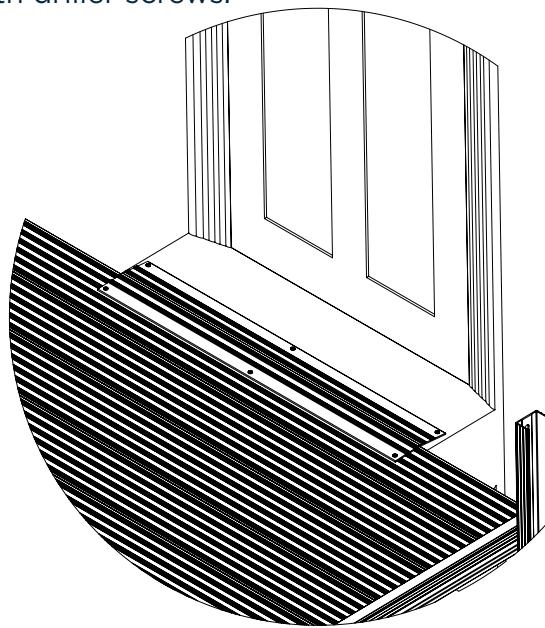


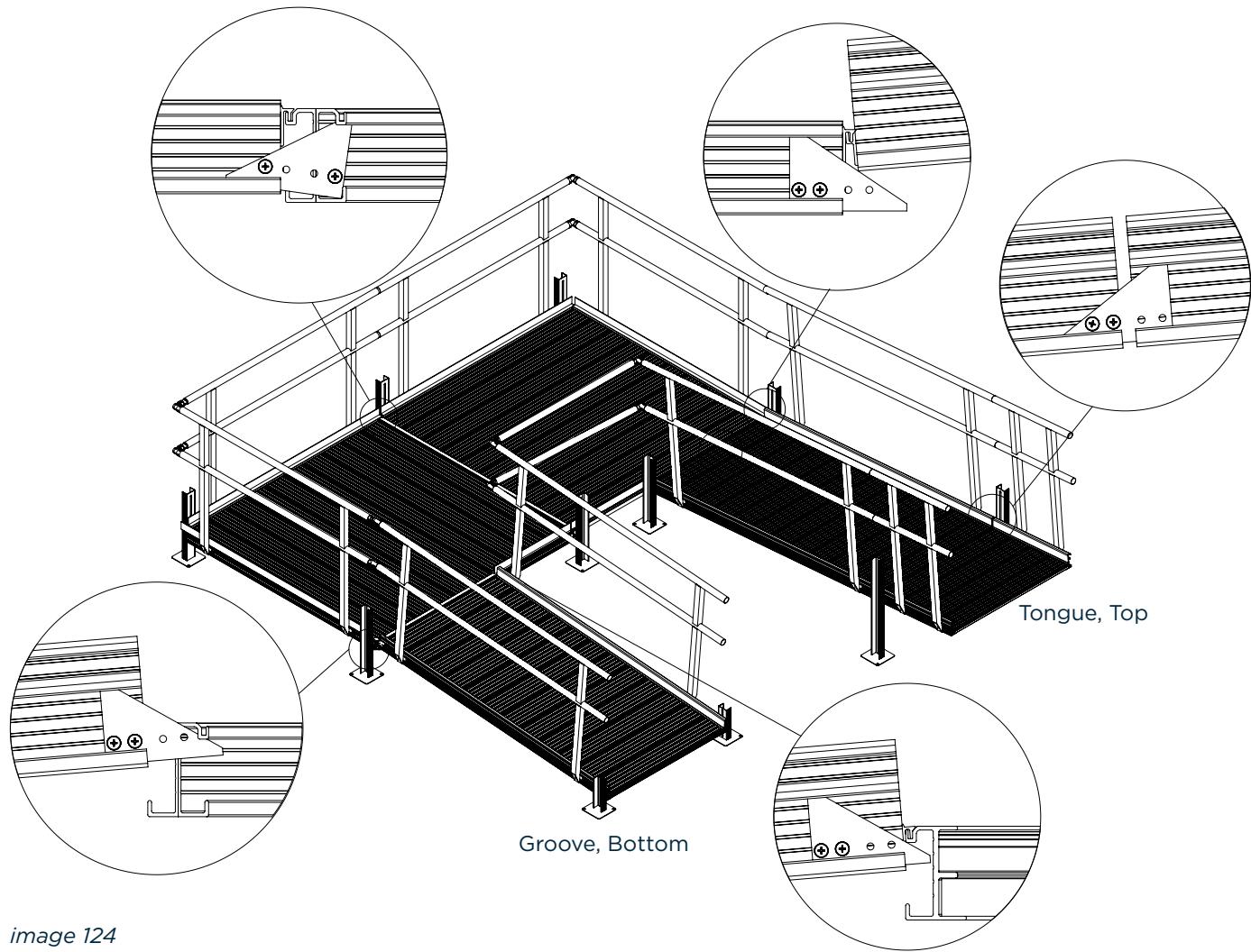
image 122

**21.10.2.** Center TTP on top of the starting ramp section or platform and the door threshold or porch, securing with driller screws.



*image 123*

**21.10.3.** Install all Ramp and Platform Brackets.



*image 124*

National Ramp requires installing all Ramp and Platform Brackets to ensure the safety and security of the ramp system. Install these brackets on both sides of the ramp.

Use the below chart to determine how to position the bracket and which holes to drill for each configuration.

**21.10.4.** Orient the bracket according to the configuration installed, taking special note of the tongue and groove orientation.

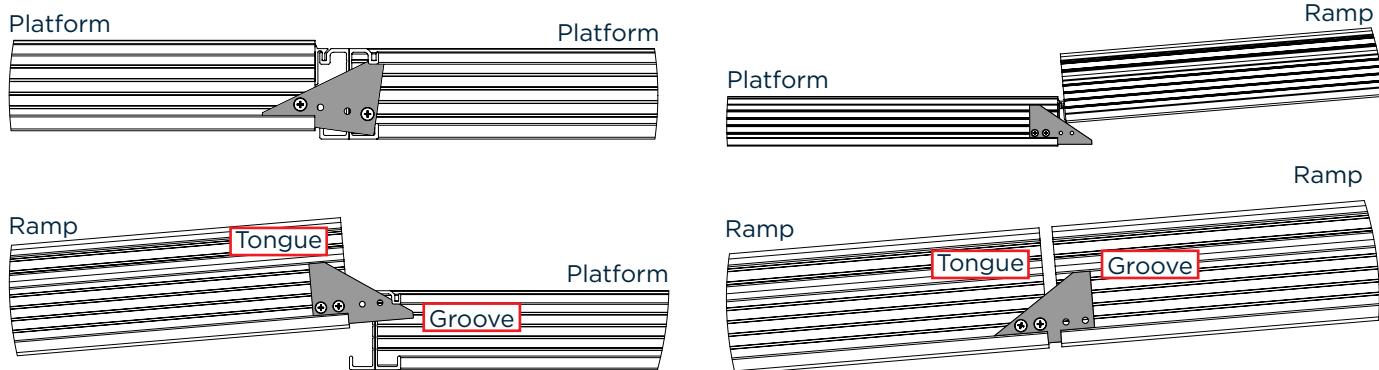


image 125

**21.10.5.** Rotate the bracket about 30° to insert into the section side channel.

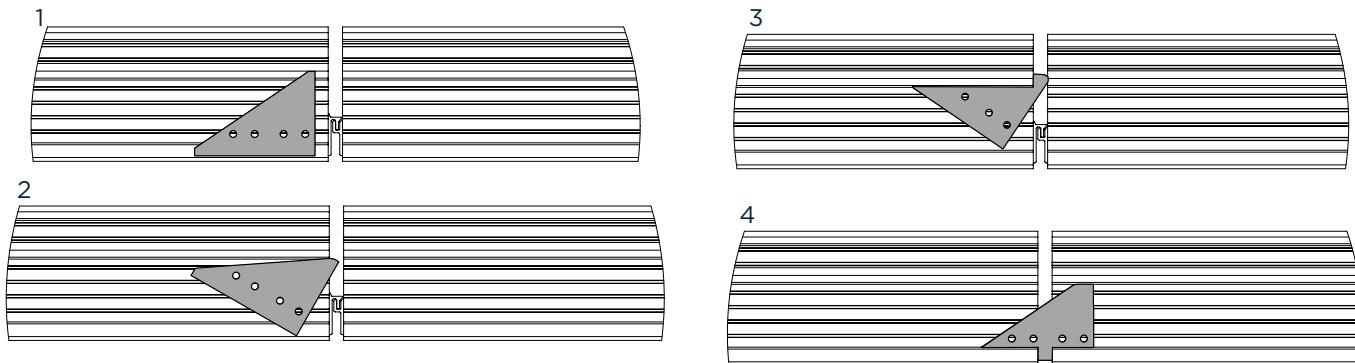
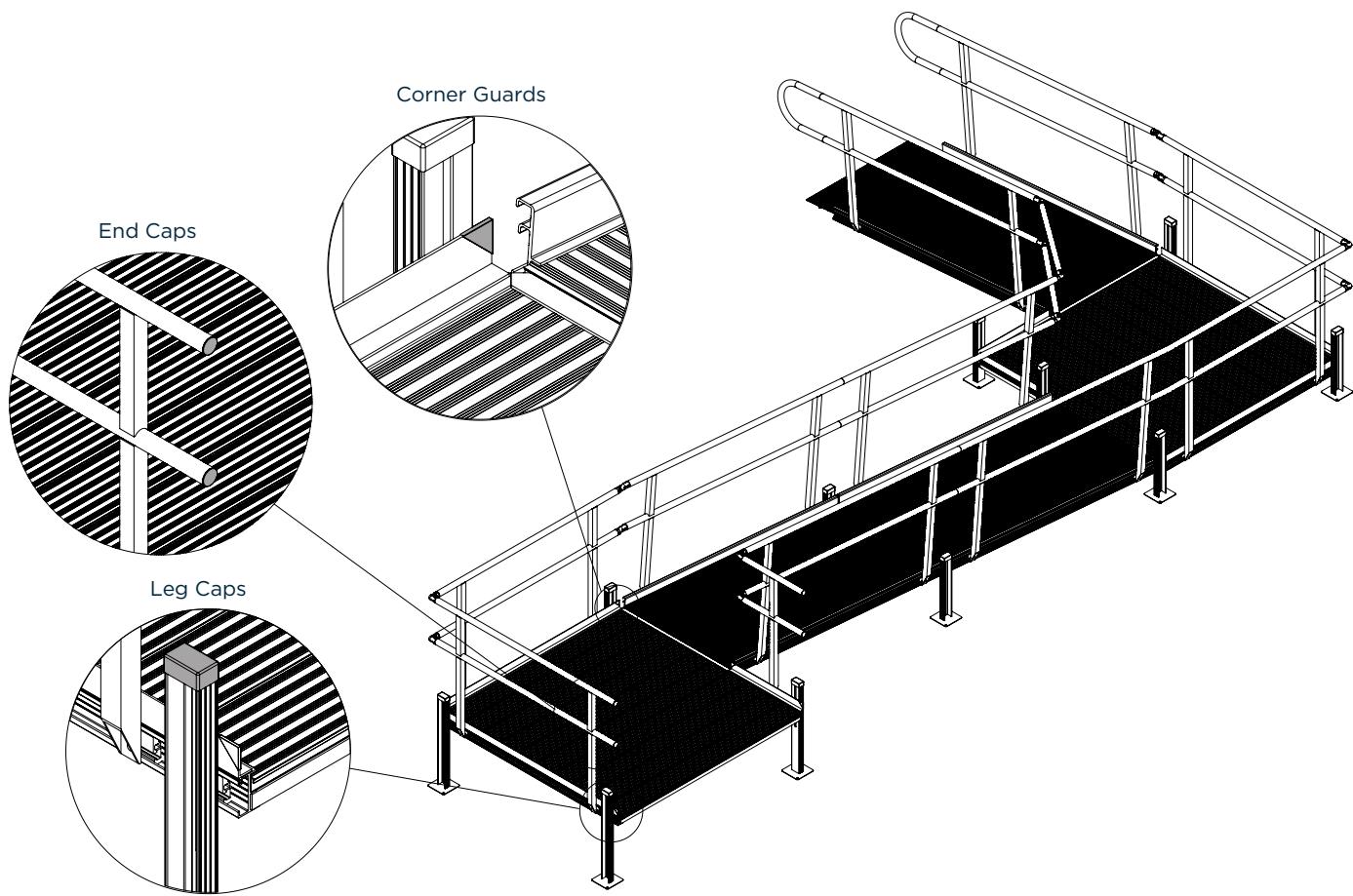


image 126

**21.10.6.** Fasten bracket into side channel using driller screws (pre-drill to ease installation), confirming the bracket holes to be used per the chart.

**21.10.7.** Pull/push up on the tongue side of the section to verify the bracket install. A successful install will not allow the tongue to disengage from the groove.

**21.10.8.** Place all leg caps, corner guards and end caps needed.



*image 127*

**21.10.9.** Once all components are tightened, walk and jump up and down the ramp to make sure the ramp feels secure. Run your hands across all railings to clear any remaining burrs.

**21.10.10.** Have the ramp user(s) traverse the ramp to make sure they feel comfortable and are happy with the result, before reviewing maintenance and care.





# RAMP MAINTENANCE AND CARE



## 22. Liberty Series™ Warranty

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National Ramp, a division of The Landmark Group, Inc., (herein referred to as Manufacturer), warrants that the equipment sold shall be free from defects in material and workmanship under normal use and service for Aluminum Ramps for a lifetime from the date of original purchase. This limited warranty applies to the original purchaser only and is not transferable or assignable by contract or by operation of law, either directly or indirectly. The original purchaser is defined as the party who first purchases the ramp from the Dealer. This ramp is for residential use and is for the intended user only. Children should not play on or under the ramp. The lifetime warranty does not apply to ramps provided by the Department of Veteran Affairs or another third party.

This limited warranty is applicable only to defective metal structure components and specifically excludes powder coated finish, applied non-skid tread, and other non-metal parts. No part of this warranty will apply to any equipment which has been subject to misuse, vandalism, negligence, alteration, improper loads, accident, improper installation, or which has been repaired outside Manufacturer's place of business in any way as in the reasonable judgment of Manufacturer, to adversely affect its performance and reliability, nor to normal deterioration due to wear, tear and exposure, corrosion, or damage caused by hail, fire, earthquake or other natural causes or acts of nature. For the sake of clarity, in addition to the foregoing, exclusions from coverage include:

- 1. Installing the ramp in a manner that does not comply with the directions laid out in the installation manual.**
- 2. Lack of maintenance to the ramp.**
- 3. Unusual weather conditions or natural disasters, including but not limited to, wind in excess of 55 miles per hour, hail, floods, hurricanes, lightning, tornadoes, earthquakes and other acts of God.**
- 4. Damage due to (a) movement or other failure of the structure to which the ramp is attached.**
- 5. Damage due to improper installation or failure of any materials used in the installation other than those provided by Manufacturer.**
- 6. Use of materials that are incompatible with those provided by the Manufacturer.**

Manufacturer shall not be responsible for any change or amendment to the specifications used in the construction of the ramp.

THIS LIMITED WARRANTY MAY BE SUSPENDED OR CANCELED IF THE RAMP IS DAMAGED BY ANY CAUSE LISTED AS AN EXCLUSION FROM COVERAGE THAT MAY AFFECT THE INTEGRITY OF THE RAMP.

In the event of a claim, you MUST notify Manufacturer within twenty (20) days after your discovery of the issue in writing by email at: sales@nationalramp.com or by overnight mail and provide proof that you are the original owner. Manufacturer will forward a Warranty Claim form to you which you MUST return to Manufacturer within five (5) days. Manufacturer's obligation and purchaser's sole remedy under this warranty is limited to, at Manufacturer's option, repairing or replacing equipment which is returned to its place of business and which, upon examination, shall disclose to Manufacturer's reasonable satisfaction to have been defective. Manufacturer will make the repair or replacement of defective components at its own expense. Manufacturer shall determine, in its sole discretion, whether to replace the equipment with either a new or repair the original unit. This limited warranty does not cover removal or re-installation. Manufacturer reserves the right to require Purchaser to pay for all shipping charges (Government purchases exempt).

No representative, employee or agent of the Manufacturer or any other person has the authority to assume any additional or other liability or responsibility for the Manufacturer unless it is in writing and signed by an authorized officer of the Manufacturer.

**DISCLAIMER: THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE, STATUTORY OR OTHERWISE. HOWEVER, THAT IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED IN ANY TERRITORY WHERE A PRODUCT IS SOLD, THE DURATION OF SUCH IMPLIED WARRANTY IS LIMITED TO THE DURATION OF THE LIMITED WARRANTY DESCRIBED IN THE FIRST PARAGRAPH.**

MANUFACTURER SHALL NOT BE LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE, MISUSE OR INABILITY TO USE THE EQUIPMENT, OR ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY, EVEN IF MANUFACTURER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOLE REMEDY FOR A BREACH OF THE FOREGOING LIMITED WARRANTY IS REPLACEMENT OF THE DEFECTIVE OR NONCONFORMING EQUIPMENT OR PART. THE MAXIMUM LIABILITY OF MANUFACTURER UNDER THIS WARRANTY IS LIMITED TO THE PURCHASE PRICE OF THE EQUIPMENT COVERED BY THE WARRANTY.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state. Manufacturer reserves the right to change or improve its products without any obligation to change or improve any product it previously manufactured.

## 23. Liberty Series™ Maintenance And Care

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The 100% aluminum ramp system does not require special maintenance, as it will not rust or corrode. The ramp must be kept free of debris. Use a stiff broom to clear the ramp of leaves and light snow.

In the event of heavy snow, use a calcium chloride or magnesium chloride ice melt, which is safe for the ramp's aluminum surface. Avoid using metal shovels, and if using a snowblower, be very careful when close to the ramp surface. Use a plastic shovel or stiff broom to clear the ramp surface directly.

The ramp should periodically be checked to ensure that connections remain tight, and parts such as Celebration Footer Pads™, corner covers and leg caps are still placed properly.

Do not allow children to play on or near the ramp. Do not hang items off of the ramp or use the ramp for storage.

The ramp comes with a lifetime warranty for any defects. This warranty does not cover damage the ramp may incur by falling trees/branches, if the ramp is hit by a vehicle, or damage caused by a storm, for example. If you believe that your Liberty System ramp has a defect, **call National Ramp at (877) 884-7267.**

# 24. Warranty Registration

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Congratulations on the purchase of your new National Ramp!

Welcome to our happy family of National Ramp owners who have found the freedom of their choice. Each of our National "Rampers" is special to us, and we would like you to know that you truly do belong to a family who cares about your needs and your freedom.

To register your ramp for warranty, kindly send an email to **HAWarranty@nationalramp.com** asking for your warranty link, and have the following information available:

- Date Ramp Was Installed
- Ramp Purchased By (Name, Last Name)
- Street Address Where Ramp Is Installed
- Contact Email Address
- Contact Phone Number
- Serial Number Of Ramp
- High Quality Picture Of Ramp [See Below For Example]
- Name Of Company Who Installed Your Ramp
- How Was The Dealer's Performance
- Comments And/Or Suggestions

Again, please email to: **HAWarranty@nationalramp.com**.

# WOULD YOU LIKE TO WIN A \$100 OR \$200 GIFT CARD? HERE'S HOW!

Our customers love sending us pictures of their ramps and we love receiving them so much that we started a monthly photo contest! Send us your best photo of your ramp to [marketing@nationalramp.com](mailto:marketing@nationalramp.com).

If your ramp picture is better than the rest, we will send you a \$100 gift card! If your ramp picture includes you on the ramp, you will win a \$200 gift card!



Thank you for making National Ramp your choice.  
We wish you all the best as you enjoy your freedom!  
Happy Ramping,

The Team at National Ramp



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