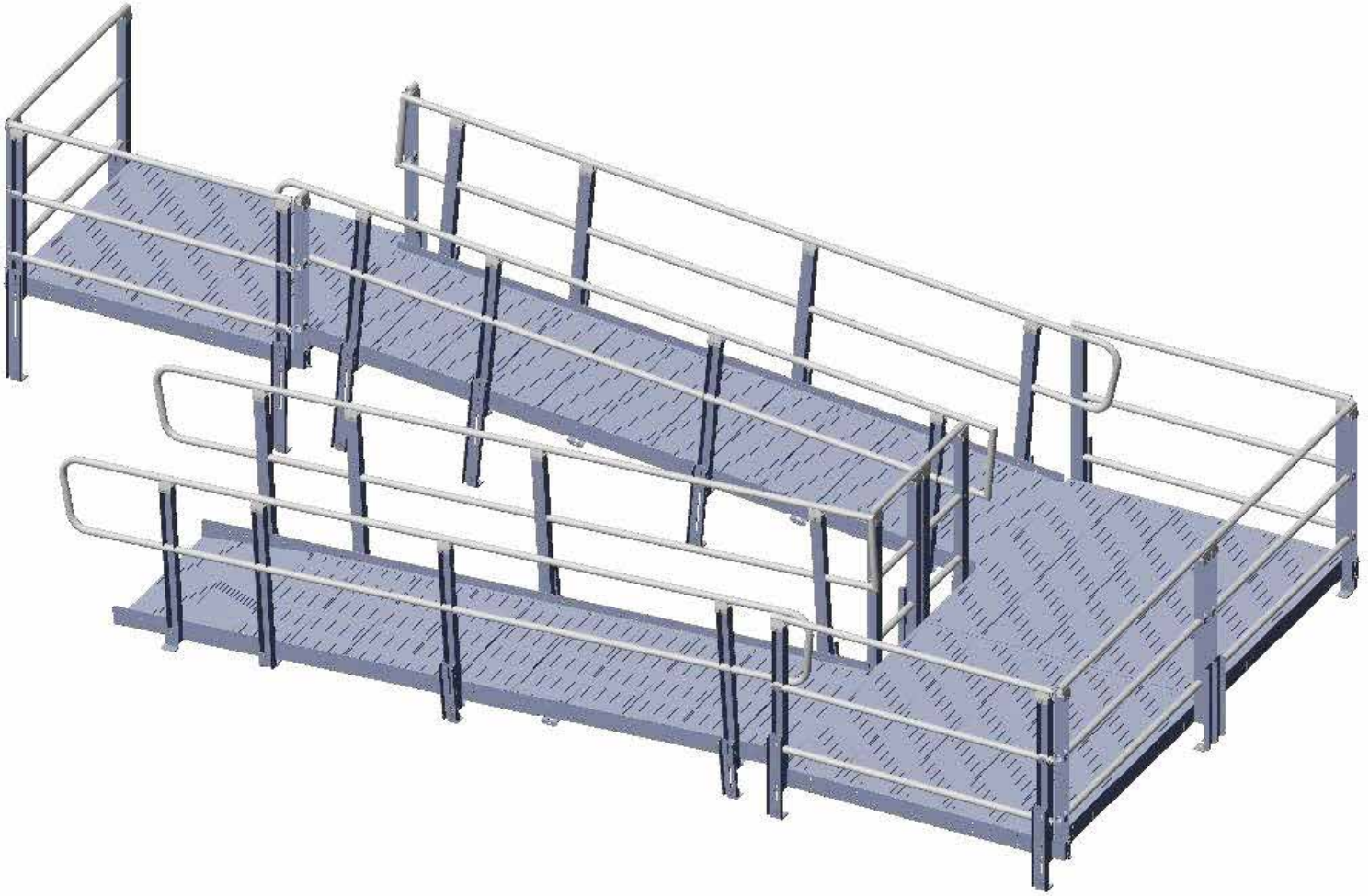


# *Prairie View Industries*

## Modular XP Ramp Assembly Manual



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# Overview

**Appearance:** The PVI Modular Ramp System with handrails has a clean uncluttered appearance that will fit in most surroundings.

**Low Maintenance:** The all aluminum design has lifetime durability in all kinds of climates without periodic painting or renewal of preservatives. The aluminum alloys used are resistant to salt corrosion (we still recommend noncorrosive or pet safe salt). The modular ramp system may even be used in coastal areas and cold climates that use deicers.

**Permanent but moveable:** The PVI Modular Ramp System serves the purpose as well or better than a permanent concrete ramp, but can still go along with the user if they move, or can be removed and resold when no longer needed. This ramp system is designed to be freestanding and totally independent of the existing structure. In many areas this simplifies compliance with local codes and in many cases eliminates permit requirements.

**Flexible Modular Components:** If or when the ramp is moved it is easy to add to, subtract from, or reconfigure the modular components at a new location. This feature makes the system attractive to lease/rental opportunities that may be available with insurance companies serving rehabilitation needs. It is best to use standard and/or existing components if possible. Custom designs add cost to the ramp and delay delivery. There are times when special components must be used and PVI is ready to provide the design and production assistance required.

**Quick, Easy Assembly and Installation:** The modular components of the PVI ramp are designed to be quickly and easily assembled with simple hand tools and set in place without the need for construction equipment. A van, pickup or small trailer is all that is needed to transport the ramp components (or shop assembled components) to the job site.

**Quick and Economical Shipping:** The modular components are stocked and warehoused so an order can be filled and shipped on short notice. The lightweight aluminum design and plant location make it economical to ship to any part of the country. Shipping cartons can be handled with ease.

## **Standard Components:**

### **Ramps**

Width: 36" Standard width; custom widths are optional

Length: Minimum length of 4'

Ramp Surface: Aluminum planking with lateral grooves, and a knurled surface.

Curbing: 2" high curb-standard

Slope: Adjustable from 1:12 to 3:12

### **Platforms turn or straight configurations**

Dimensions: 48"x60", 60"x60" standard sizes.

Height: minimum height of 4 ½", maximum height of 60"

Load Capacity: 100 lb. / sq. ft.

### **180 Degree turn or straight through platform**

Dimensions: 60"x96" or 60"x120" Standard.

Height: minimum height of 4 ½", maximum height of 60"

Load Capacity: 100 lb. / sq. ft.

# Overview, cont...

## Slopes, Handrails and Layout Considerations

*NOTE: ADA COMPLIANCE IS USUALLY OPTIONAL (GUIDELINE ONLY) FOR RAMPS TO PRIVATE HOMES*

**Slopes:** The ADA recommended slope of 1:12 is preferred when possible. However, when space is limited or other considerations require a steeper ramp, the PVI modular system will accommodate slopes up to 3:12 (3:12 slope is not recommended). Any slope selected must consider the capabilities and safety of the users and their equipment.

**Handrails:** ADA requires handrails on any ramp with a rise of 6" or more. The PVI Modular Ramp System is available with or without handrail; however, we recommend handrails on all but the shortest ramps unless other provisions are made for the safety and assistance of the user. Some codes mandate handrail spacing and/or vertical slats. Call PVI on designs with special handrail requirements.

**Layout Considerations:** The usable width of a standard ramp is 36", the overall width of the ramp (from leg to leg) is 41 ¼". The length of the individual ramp segments are as follows: 3', 4', & 5'. The segments are used in combinations to make lengths from 6' and longer in 1' increments.

## Shipping

**Freight Line and Freight Charges:** PVI uses a combination of truck lines. Freight charges vary depending on the size and scope of the ramp system and destination. Call PVI for a price quote on a particular ramp.

**Handling:** All components are shipped in packages light enough to be handled with ease.

## Assembly

**Ramp and Platform Assembly:** Complete detailed assembly instructions are included with each ramp. Assembly time for ramps is approximately one man hour per 16 foot of ramp length. Assembly time for platforms is approximately ½ man hour. Ramps can be assembled in sub assemblies for easy transport to the job site. Site preparation, transport time and anchoring time is not included.

*NOTE: During assembly do not tighten hardware all of the way until assembly is complete.*

**Footing and Anchoring:** The PVI Modular Ramp Systems are designed to be freestanding, independent structures that do not have to be permanently attached to the building it serves. Each supporting leg is independently adjustable so any settling or heaving of the supporting surface can be adjusted quickly and easily with a single ½" ratchet. The ramps are also designed to be disassembled, moved and reassembled at a new site in a new configuration and length. Platforms must have a minimum of one leg anchored on each of the two opposite sides. Each free standing ramp must be anchored at the upper and lower end. Secure anchoring for the first pair of post at the bottom is especially important because this adds necessary strength to the lower end of the handrails. Anchoring may consist of lag screws or bolts into existing concrete, precast pads, patio pavers or poured in place.

## Overview, cont...

### Modular Ramp System Assembly

**Step #1:** Unpack all components and make sure all parts on packing list are present.

**Step #2:** Start by assembling the platform at the entrance door (Top Platform).

- (A) Select the platform configuration from the configuration list.
- (B) Assemble using platform parts in Section 2.2.
- (C) Set in place, level, and install leg braces if required.

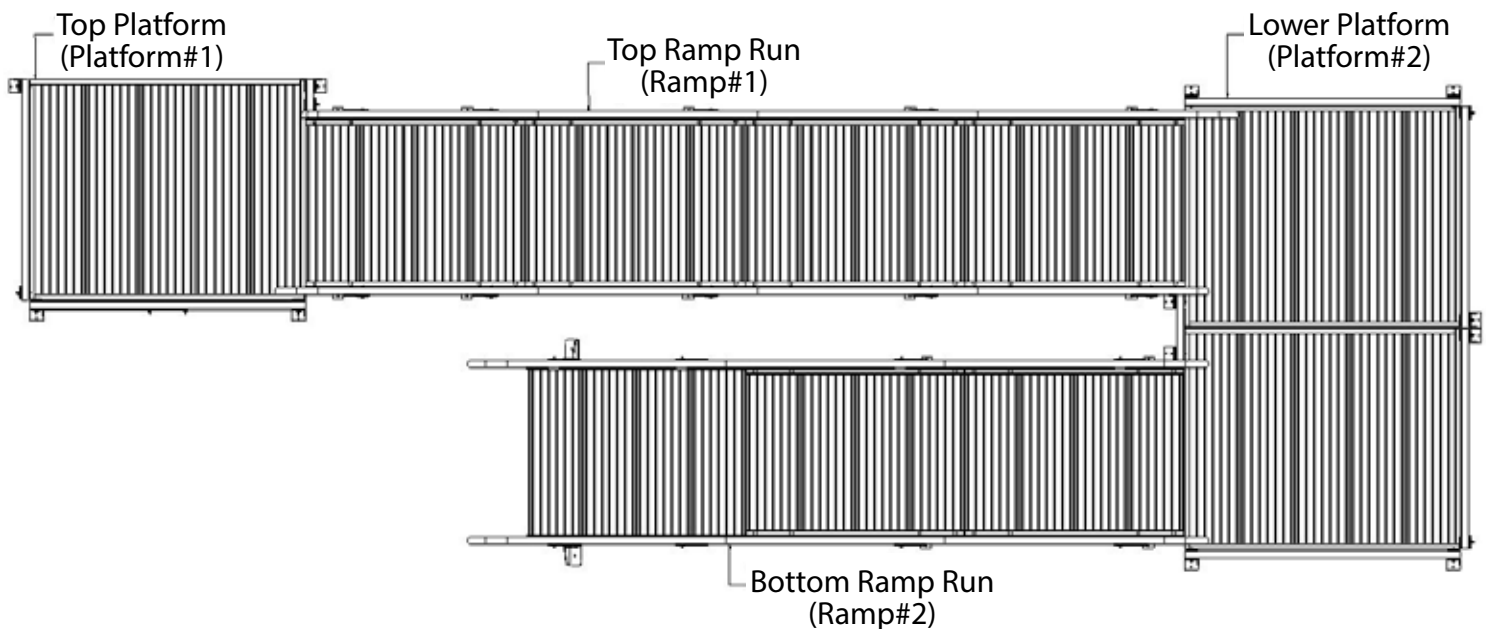
**Step #3:** Assemble first ramp section using parts in Section 2.1. (Ramp#1)

**Step #4:** Assemble next platform same as (A) (B) (C) of the top platform. (Platform#2)

**Step #5:** Assemble next ramp section. (Ramp#2)

**Step #6:** Check all bolts and make sure all bolts are tightened.

**NOTE:** Some systems may only require one platform and one ramp if so skip steps 4-5.

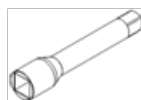


## 1.1 Tools Required

- Ratchet
- 1/2" Deep Well Socket
- Socket Extension
- 1/2" Wrench
- Cordless Drill
- #2 Phillips Drill Bit
- Tape Measure
- Saw Horses (two pair are recommended)
- 1/4" Masonry Bit (for anchoring into concrete)
- 5/32 Allen Wrench



Ratchet



Socket Extension



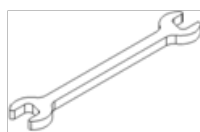
1/2" Deep Well  
Socket



1/4" Masonry Bit



Tape Measure



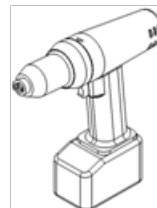
1/2" Wrench



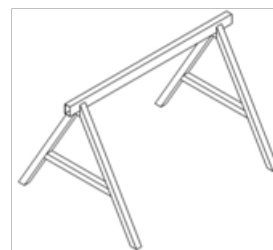
5/32 Allen  
Wrench



#2 Phillips Bit



Cordless Drill



Saw Horse

## 1.2 Hardware List

- 5/16 x 1 Carr. Bolt
- 5/16 x 2 1/2 Carr. Bolt (attaching top handrail to ramp and platform post)
- 5/16 Self Locking Nut
- 5/16 Jam Nut (attaching ramp post to ramp)
- 5/16 Flat Washer
- Handrail Splice
- Handrail Bolt Sleeve
- #10-16 Self Tapping Screw (post corner kit & ramp attachment clips platforms)



5/16 x 3/4 Carriage Bolt



5/16 x 1  
Carriage Bolt



5/16 Self  
Locking Nut



#10-16 Self  
Tapping Screw



5/16 x 2 1/2 Carriage Bolt



5/16 Jam Nut



5/16 Flat  
Washer



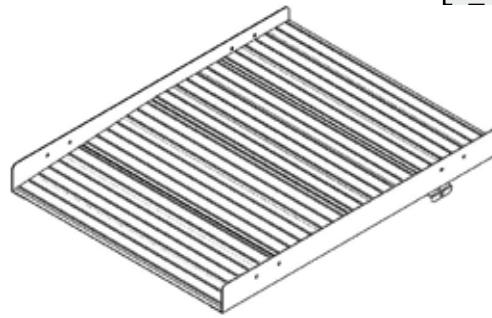
Handrail Splice

*Note: Items listed here are for reference purposes.  
Please refer to system parts list for quantities.*

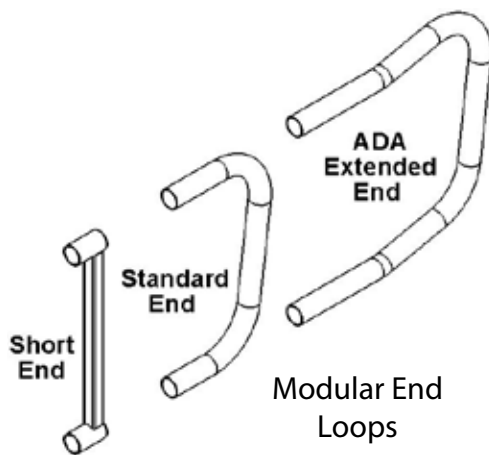
## 2.1 Standard Ramp Parts



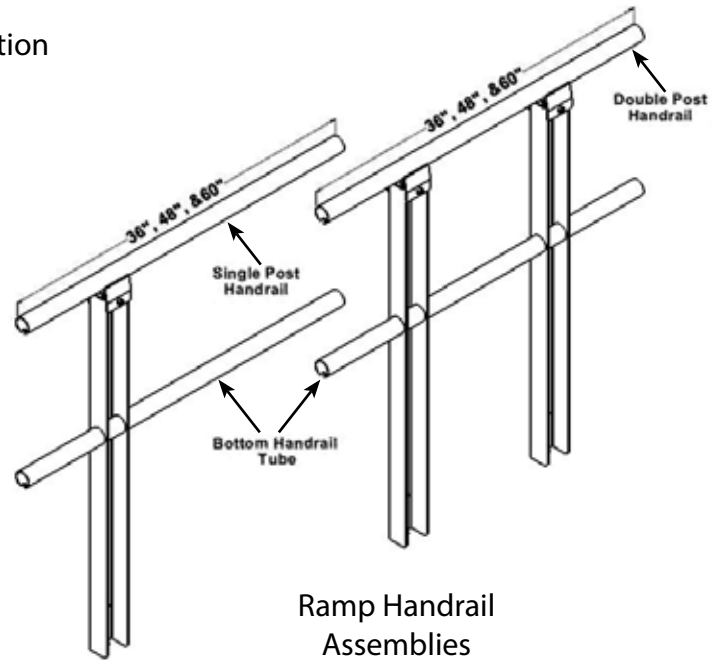
Ramp Section  
3', 4', & 5'



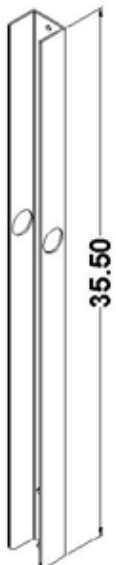
Entrance Section  
3', 4', & 5'



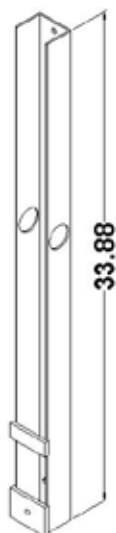
Modular End  
Loops



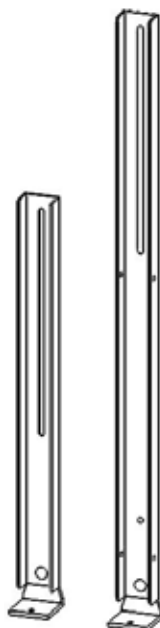
Ramp Handrail  
Assemblies



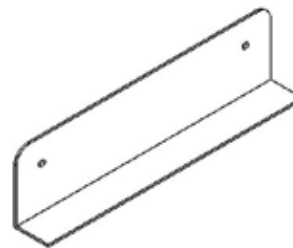
Ramp Post



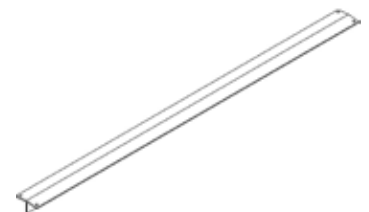
Entrance Post



Ramp Leg



Ramp Splice



Upper "T"



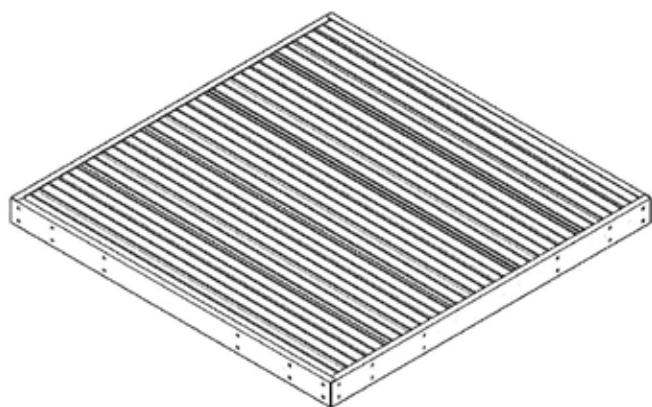
Support Bracket



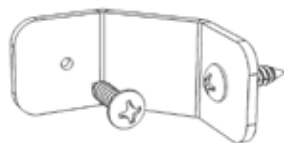
Long Leg Strap

## 2.2 Standard Platform Parts

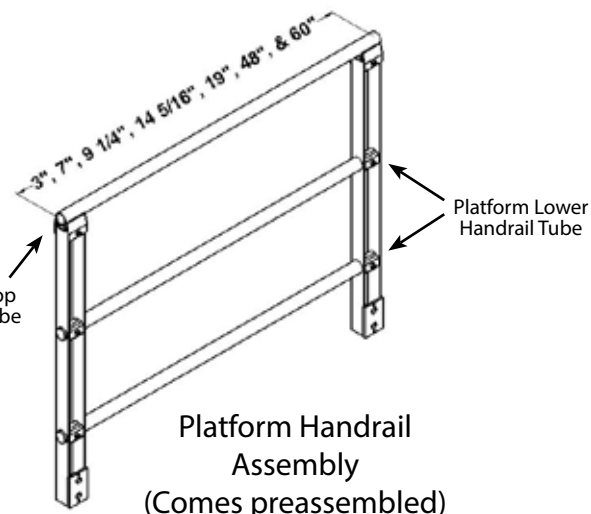
*Note: Items listed here are for reference purposes.  
Please refer to system parts list for quantities.*



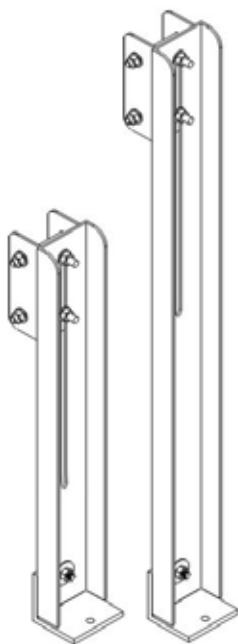
Platform Bases  
4'x5' & 5'x5'



Post Corner Kit



Platform Handrail Assembly  
(Comes preassembled)



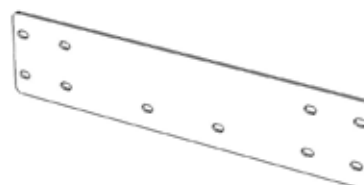
Platform  
Legs



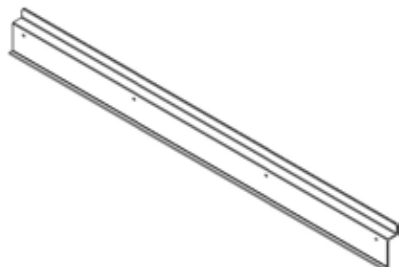
Platform  
Under-Support



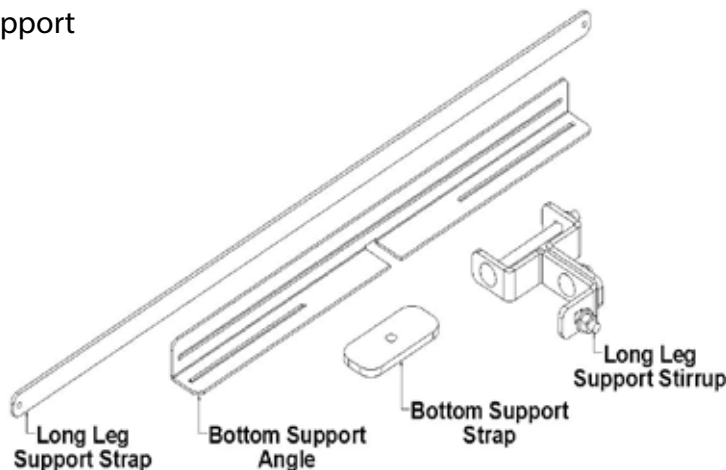
Handrail Splice Kit



Open Sided Platform Splice



Ramp Attachment Clip



Long Leg  
Support Strap

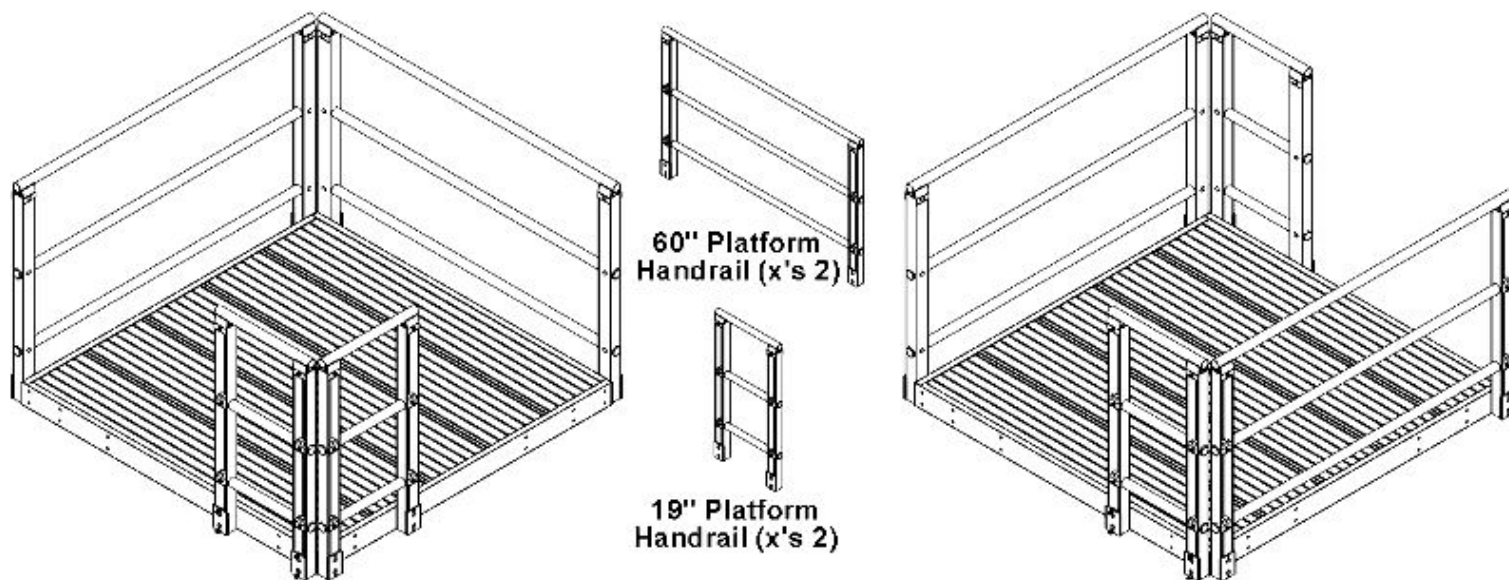
Bottom Support  
Angle

Bottom Support  
Strap

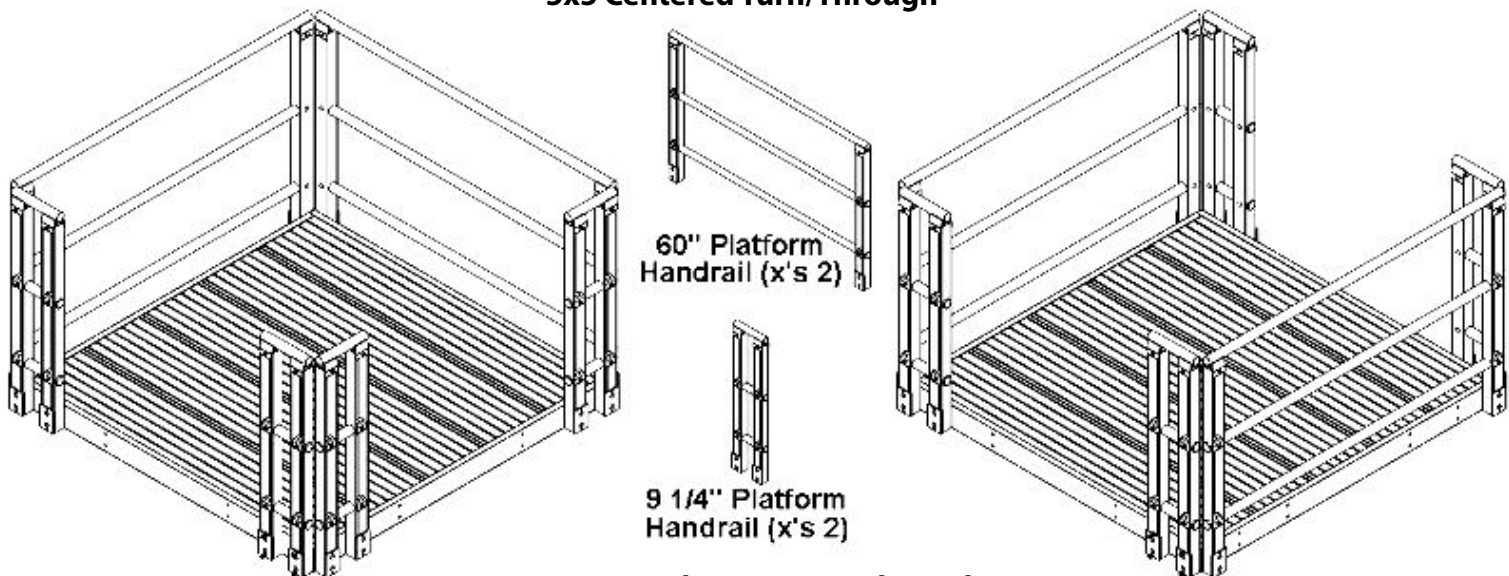
Long Leg  
Support Stirrup



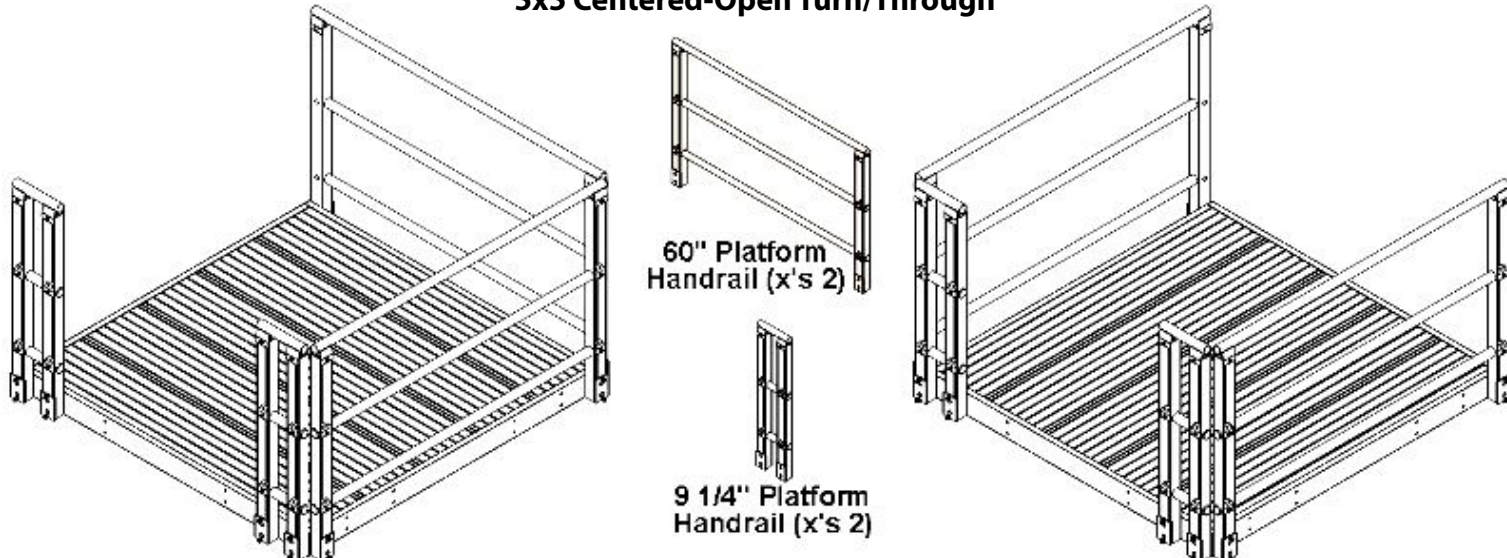
## 2.3 (A) 5x5 Platform Configurations



### 5x5 Centered Turn/Through



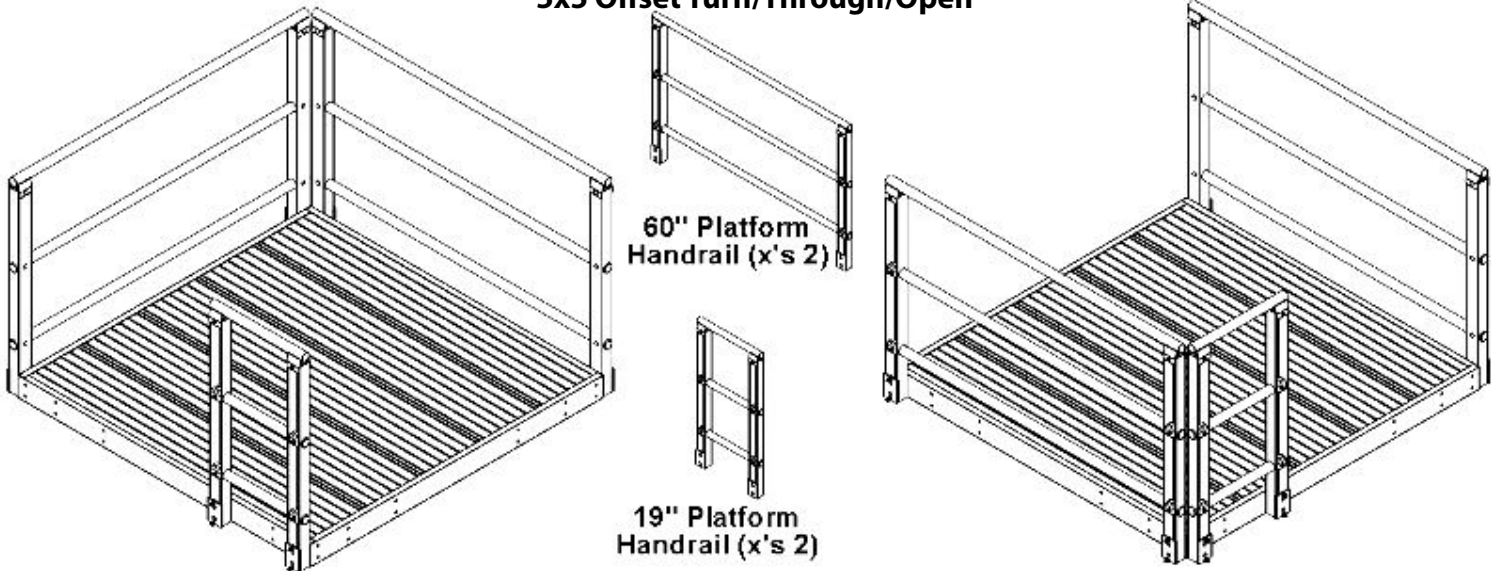
### 5x5 Centered-Open Turn/Through





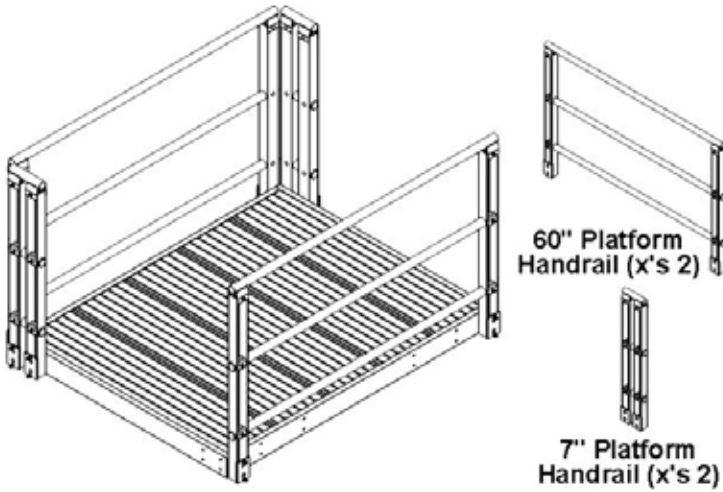
## 2.3 (A) 5x5 Platform Configurations

### 5x5 Offset Turn/Through/Open

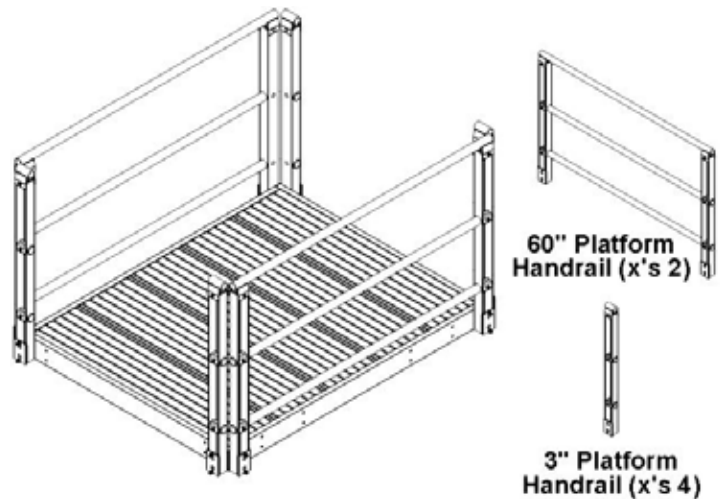


## 2.3 (B) 4x5 Platform Configurations

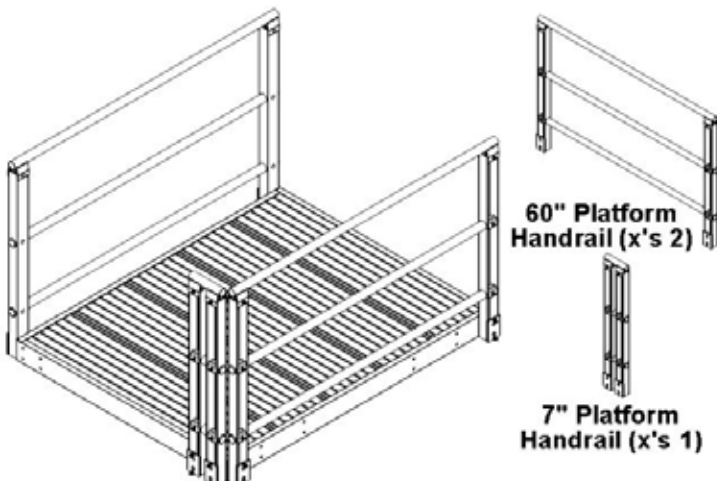
### 4x5 Offset Through



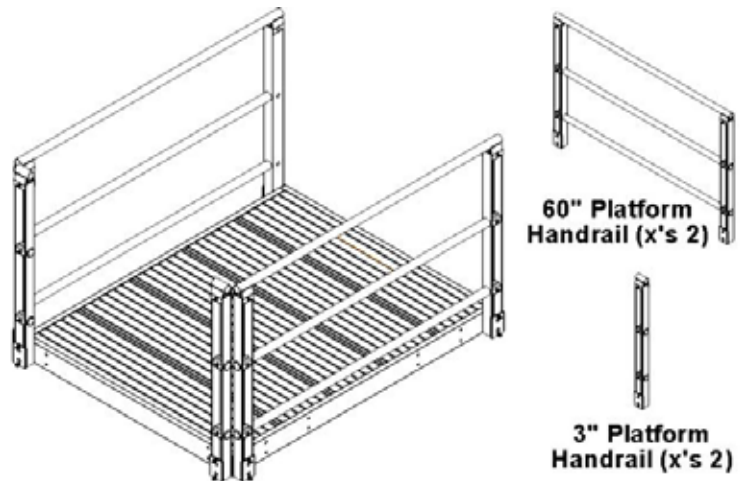
### 4x5 Centered Through



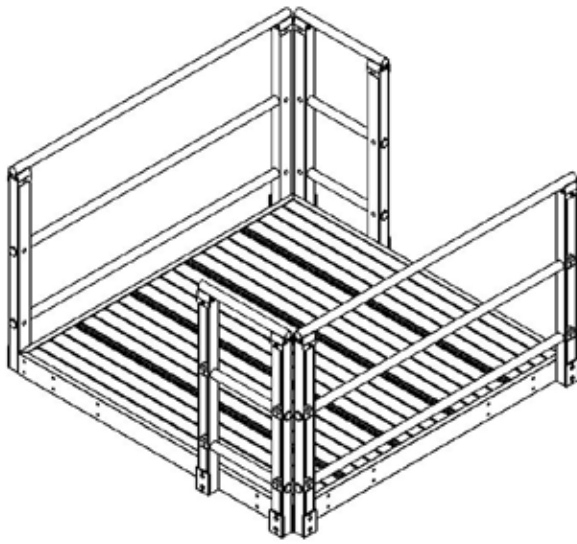
### 4x5 Offset Through



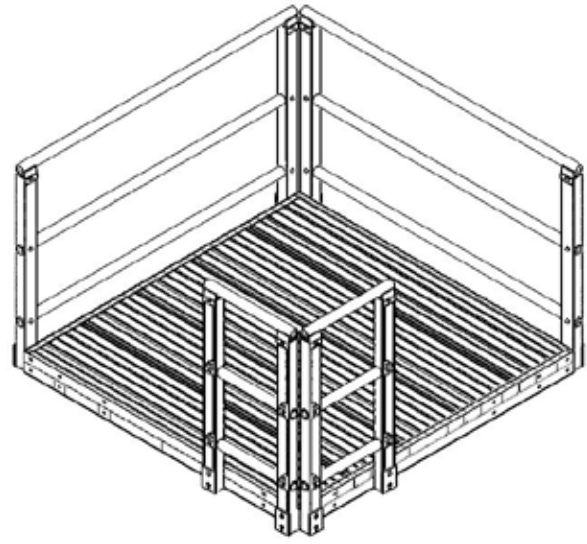
### 4x5 Centered Through/Open



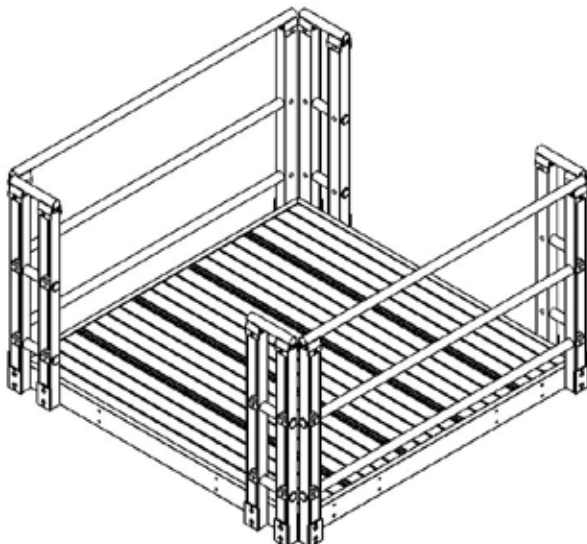
## 2.3 Standard Platform Configurations



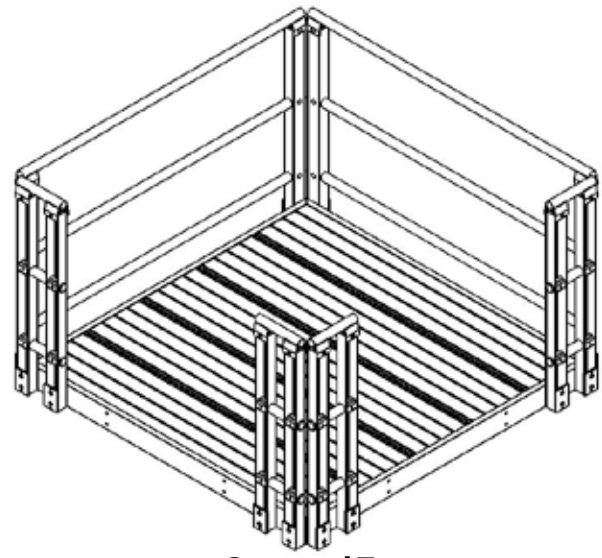
**Offset Through**



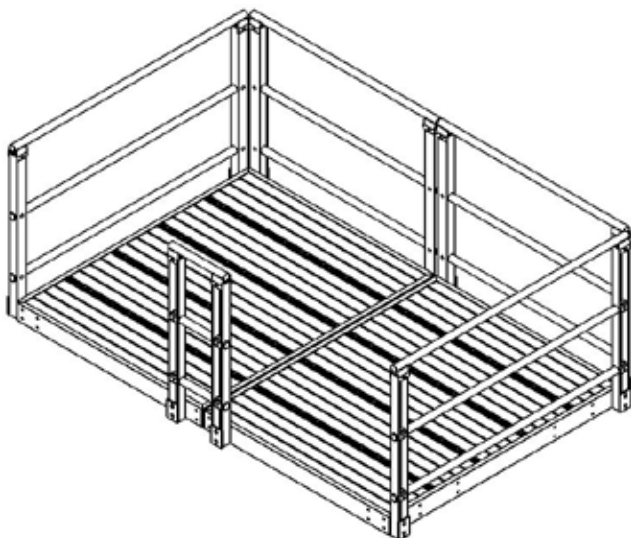
**Offset Turn**



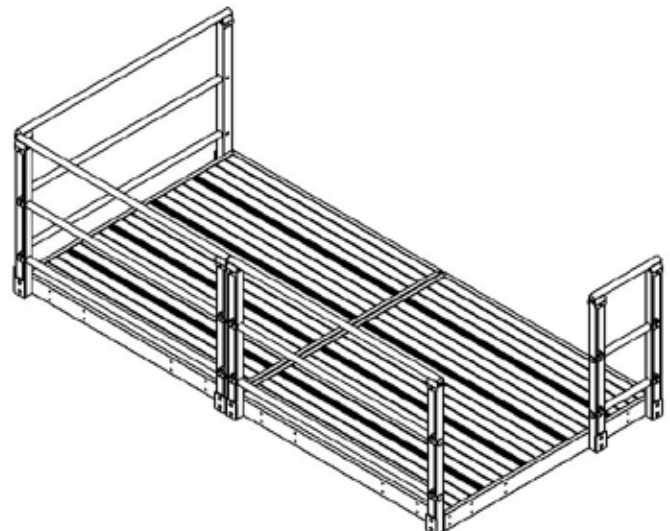
**Centered Through**



**Centered Turn**



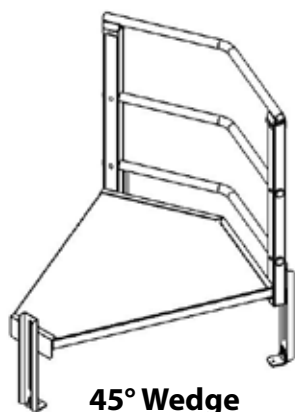
**Switch Back**



**Open Sided**

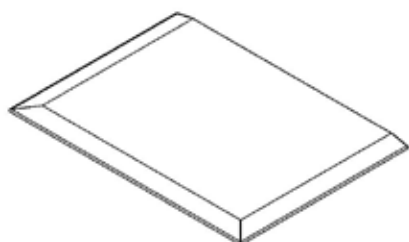
## 2.4 Optional Parts

*Note: Items listed here are for reference purposes.  
Please refer to system parts list for quantities.*



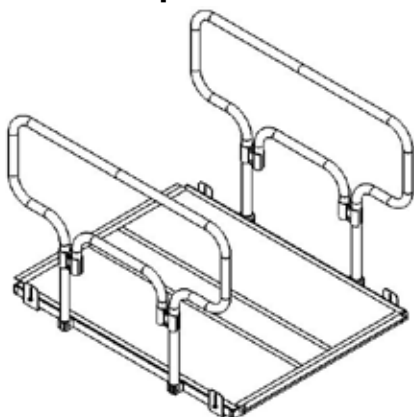
**45° Wedge**

45° Wedge are used when a platform is needed, but does not have the space required to use a platform or make a 90° turn.



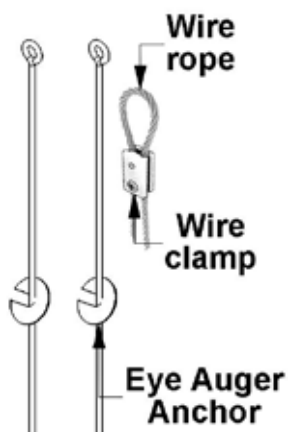
**Ramp Platform**

Ramp platforms are used when bottom ramp ending surface is not suitable for accessing the bottom ramp of a modular ramp system, it is not recommended to use this as the only anchor point for a bottom ramp.



**Platform Transition**

Platform Transitions are used when the entrance/door off of the top platform requires a level bridge from the platform to the door. Platform transitions are to only be used at minimal height, and always be level.



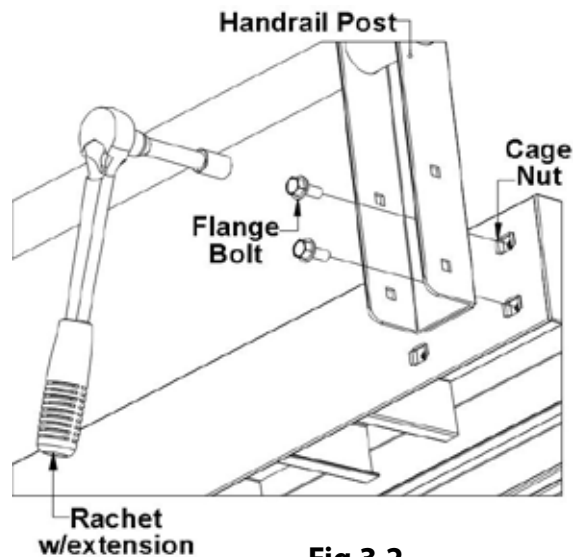
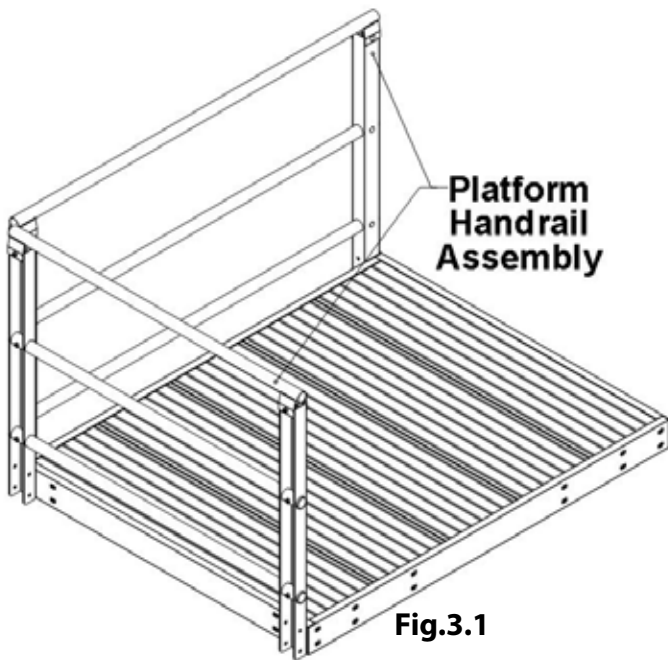
**Hurricane Kit**

Hurricane Kits are used when required in applications where local building codes require that the modular ramp system be anchored to the ground.



## 3.1 Handrail to Platform Attachment

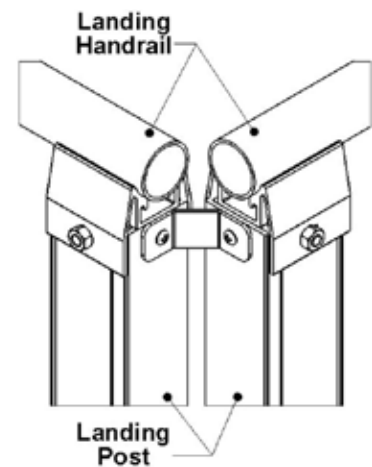
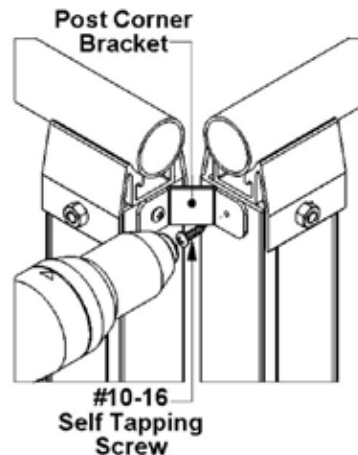
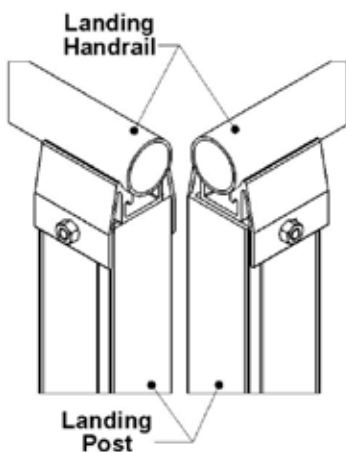
*Note: If your platform requires long leg supports, install Bottom Support Angle first (Section 3.3.1; page 16).*



No Platform?  
Skip to Section 4  
Found on  
page 17.

**3.1 Handrail to Platform Attachment:** Align the holes at the bottom of handrail post with the pre-installed cage nuts in the landing base. Place a 5/16x3/4 flange bolt through the holes in the handrail post and thread into the cage nut, do not fully tighten flange bolts until each flange bolt has been started (**Fig.3.2**). Repeat this process for each handrail. *NOTE: setting the platform base on saw horses will make the attachment of handrail quicker and easier.*

## 3.2 Post Corner Bracket Install



**3.2 Post Corner Bracket Install:** Once all handrail has been attached to platform the post corner brackets will need to be installed in all corners where handrail meet (**Fig.3.3**). Place bracket in the corner with the pilot hole in the bracket centered on the platform post, and the edge flush up against the handrail bracket attached to the platform post. Using a self tapping screw and cordless drill attach the post corner bracket to the first post (**Fig.3.4**). Attach the post corner bracket to the second post using the same method. The corners may not line up perfectly it may be necessary to force the second post into the proper position.

## 3.3 Platform Leg Attachment

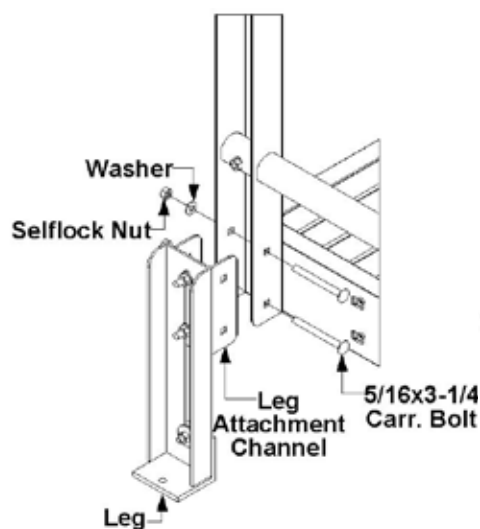


Fig.3.6

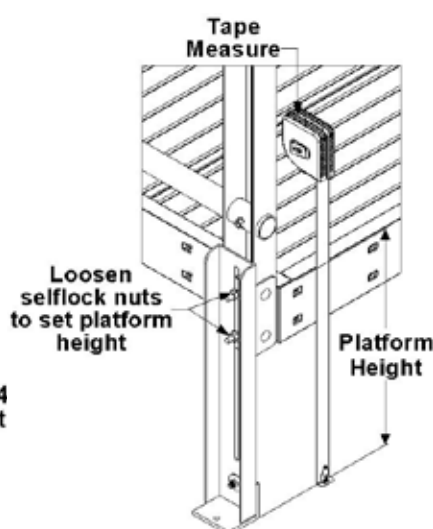


Fig.3.7

**3.3 Platform Leg Attachment:** To attach the legs to the platform place the leg attachment channel over the handrail post with one edge of the attachment channel on the inside of the handrail post and one to the outside of the handrail post. Align the holes in the handrail post and the leg attachment channel, place a 5/16 x 3 1/4" hex bolts through all and fasten with a washer and self locking nut (**Fig.3.6**). To adjust the leg height, loosen the self locking nuts on the inside of the leg channel and set landing height and retighten the self locking nuts (**Fig.3.7**). *NOTE: When adjusting platform height pressure may need to be applied to leg when re-tightening self locking nuts to hold the carriage bolts in place.*

## 3.4 Platform Under-Support Attachment

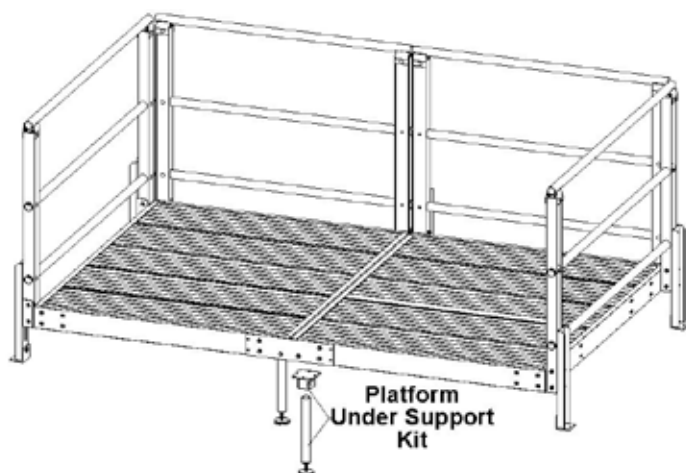


Fig.3.8

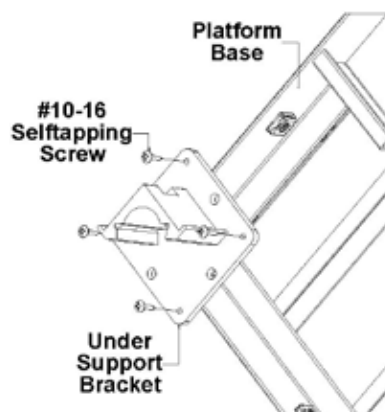


Fig.3.9

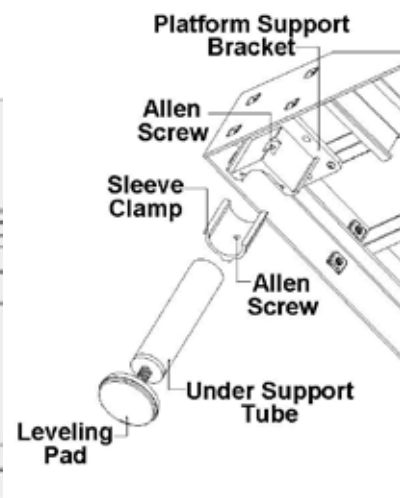


Fig.3.10

**3.6 Platform Under-Support Attachment:** Locate platform corners that will require a Platform under support kit (**Fig.3.8**). Place under support bracket flush in the underside corner of platform base. Attach using four #10-16 self tapping screws (**Fig.3.9**). Slide the Sleeve Clamp into the under support bracket, then insert under support tube all the way into the created pocket (**Fig.3.10**). Using a 5/32 allen wrench, tighten the set screw all the way down. The leveling pad can be adjusted for minor height differences; however, if major adjustments are necessary, cut down the under support tube using a saw or tube cutter.

## 3.5 Multiple Platform Base Open Side Assembly

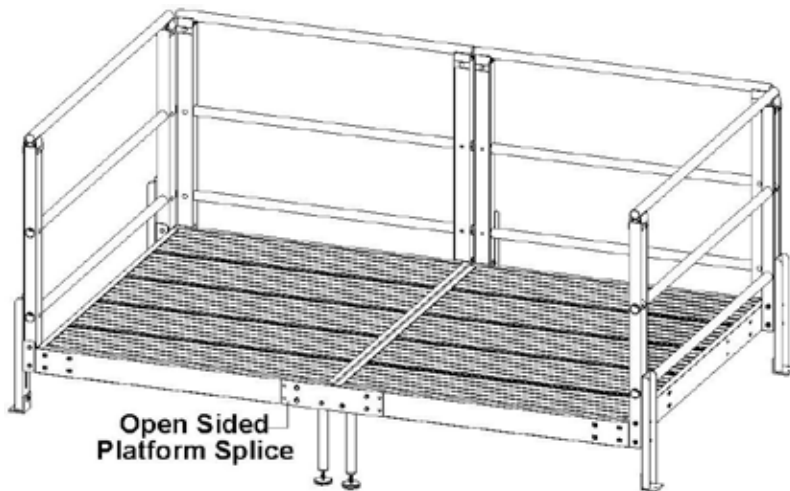


Fig.3.11

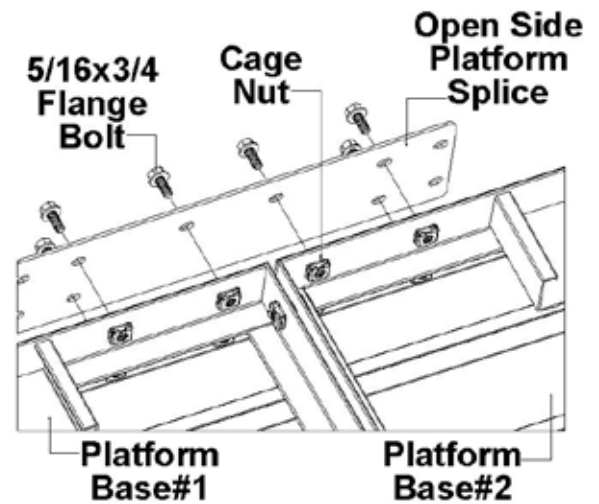


Fig.3.12

**3.5 Multiple Platform Base Open Side Assembly:** If an open side is required on a multiple base platform an open side platform splice, and some under support brackets will be needed (section 3.4 on page 14). With the under support brackets installed attach the open sided platform splice to each platform by lining up the holes in the open sided splice with the installed cage nuts of the platform, fasten the open sided splice with the 5/16x3/4 flange bolts (Fig.3.12).

## 3.6 Multiple Platform Base Assembly

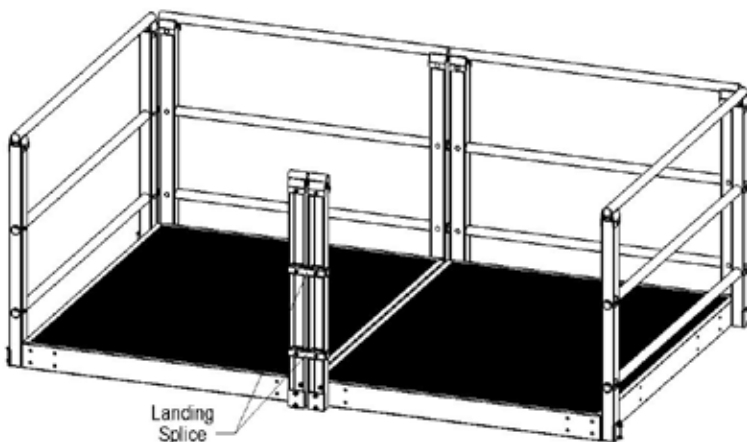


Fig.3.13

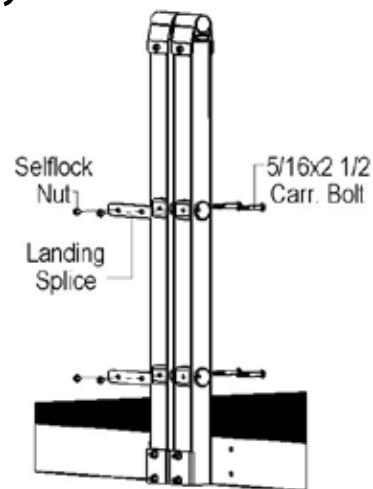


Fig.3.14

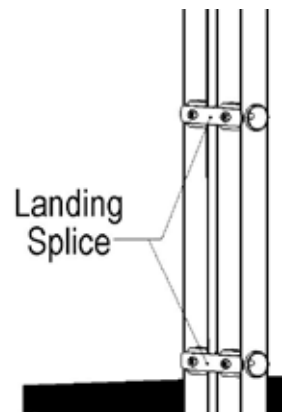


Fig.3.15

**3.4 Multiple Platform Base Assembly:** Position both bases with handrail fully assembled, and the legs attached side by side (Fig.3.13). Remove the 5/16 x 2½ carriage bolts from the handrail post middle, and bottom handrail tubes (Fig.3.14). Place a platform splice on the inside of the platform post at both the middle and bottom handrail locations. Replace the 5/16 x 2½ carriage bolts with 5/16 x 2½ carriage bolts supplied with the platform handrail splice kit. Push carriage bolt through all, after the clamp adapters have been replaced place a platform splice over the carriage bolts at the middle and bottom handrail location. Fasten all with self locking nuts.

### 3.7.1 Platform Long Leg Support - Angle

*Note: Long Leg Supports are required on any platform with a rise of 36" or greater.*

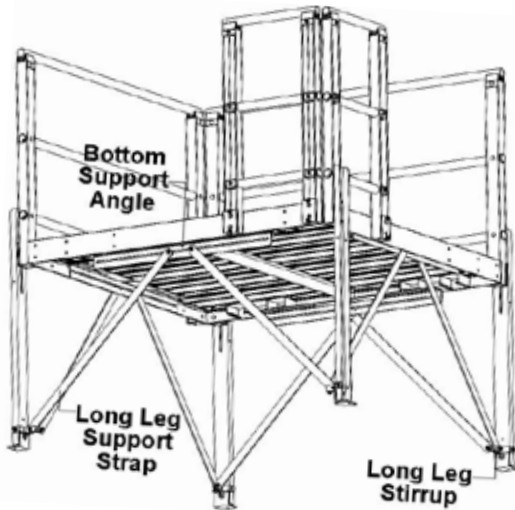


Fig.3.16

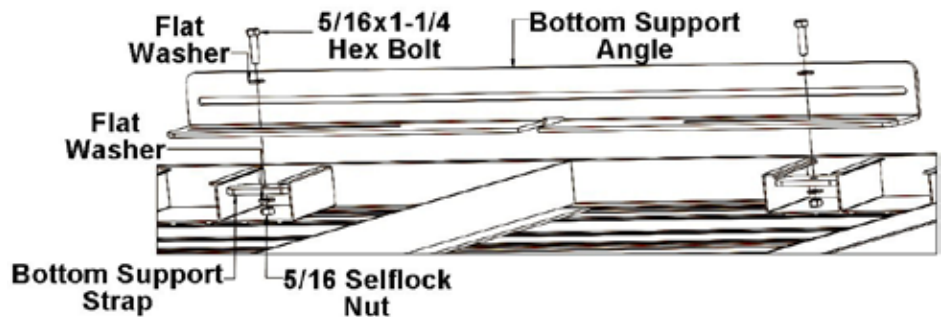


Fig.3.17

**3.7.1 Platform Long Leg Support Angle:** Install the bottom support angle before the platform handrail and legs are assembled. Set platform out upside down. Center one support angle to each of the four sides. Keeping the angles approximately 1 1/2" from the outside edge of the platform, face the side with the center notch against the platform plank, and the flat side of the angle to the outside of the platform. Place the bottom support straps in between the ribs of plank closest to both ends of bottom support angle, running a 5/16x1 1/4 hex bolt through the hole of the bottom support strap and the bottom support angle with a flat washer on both sides pinching the plank between the bottom support angle and bottom support strap (**Fig.3.17**). Return to **Section 3.1** on page 13 to install the platform handrail and legs.

### 3.7.2 Platform Long Leg Support - Straps

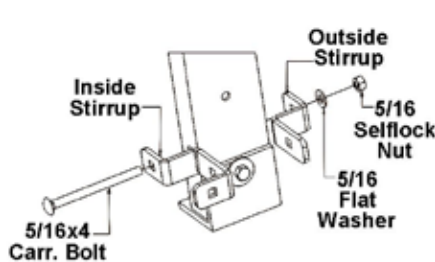


Fig.3.18

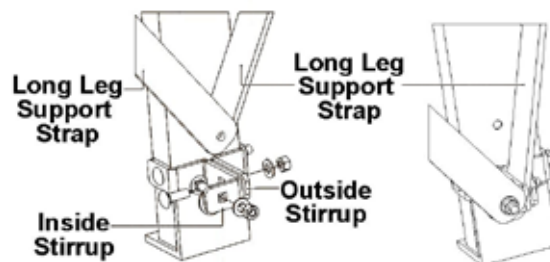


Fig.3.19

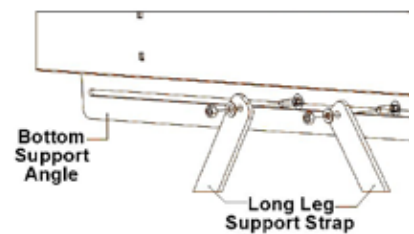
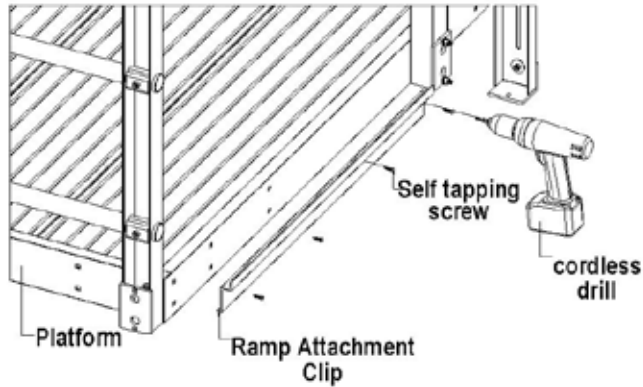


Fig.3.20

**3.7.2 Platform Long Leg Support - Straps:** With the platform assembly complete and set to the proper height (achieved after all ramp sections and platforms are contiguous to ensure platform is in location and leveled) install the stirrups to each leg. Making sure that the inside stirrups are to the inside of the platform; run a 5/16x4 carriage bolt through the inside stirrup, platform leg, and the outside stirrup. Fasten with a flat washer and 5/16 self locking nut (**Fig.3.18**). With stirrups installed at all leg locations begin to install the long leg support straps: two per side of platform. There will be two long support straps attached to each of the stirrups, one between the stirrups and one to the extra tab on the inside stirrup. Run the 5/16x1 carriage bolt through the square hole of the stirrup and the round hole in the long leg strap and fasten with a flat washer and self locking nut, and finger tighten hardware. (**Fig.3.19**) Pivot the long leg support strap up to and behind the bottom support angle. Align the long leg support strap round hole with the slotted hole in the bottom support angle; run a 5/16x1 carriage bolt through and finger tighten with a flat washer and self locking nut (**Fig.3.20**). Repeat this step at each location. Once all long leg straps have been installed go back and tighten hardware the rest of the way.



## 3.7 Ramp to Platform Attachment



**Fig.3.21**

**3.7 Ramp to Platform Attachment:** When the opening sides of the platform have been determined, attach the ramp attachment bracket to the platform base using self-tapping screws, space the ramp attachment clip centered to the opening of the platform being used (**Fig.3.21**). Now it is time to assemble ramp sections, continue to **section 4**.

*Note: When assembling ramp sections, refer to **Overview** found on page 5.*

## 4.1 Ramp Section Assembly (top ramps)

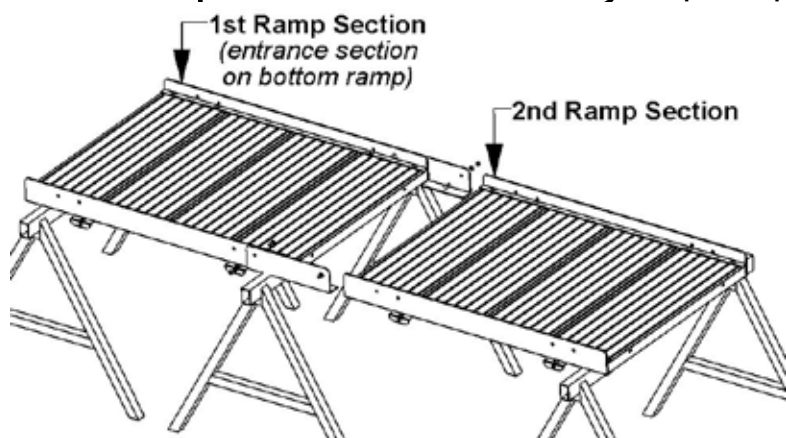


Fig.4.1

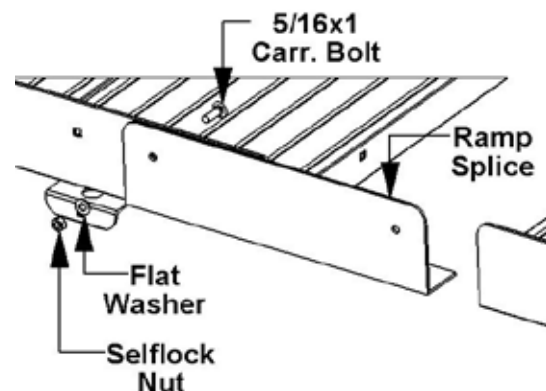


Fig.4.2

**4.1 Ramp Section Assembly:** If system has platforms assemble platforms first and set in place before assembling ramps. Start by setting the first ramp section (**shortest ramp section**) of the ramp run across a set of saw horses. (Fig.4.1) If assembling a bottom ramp run start with the entrance section. Attach a ramp splice to each side of the first section of ramp using the square holes in the ramp frame rail closest to the end of ramp section. Place ramp splice over the ramp frame rail and align the holes of the ramp splice and ramp frame rail (Fig.4.2). Place carriage bolt through the holes making sure to keep the head of the bolt to the inside of ramp section. Place washer over bolt and fasten with self locking nut. Position the next section of ramp and attach using the same method, repeat this process until entire ramp run has been spliced together.

## 4.2 Ramp Post Attachment

*Note: Place Entrance Posts at base of bottom ramp as shown in Fig.4.6 found on page 19.*

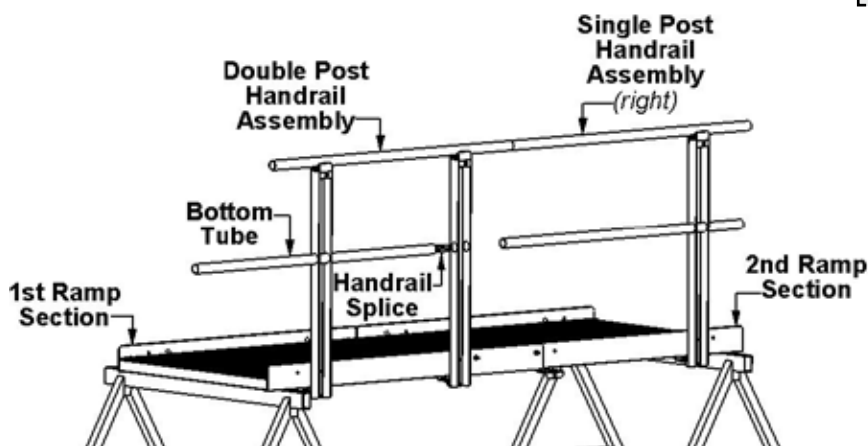


Fig.4.3

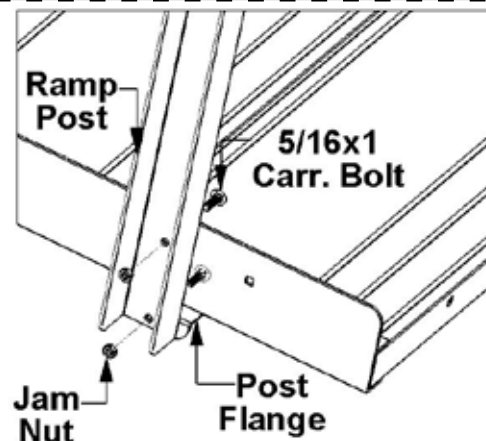


Fig.4.4

**4.2 Ramp Post Attachment:** Attach handrail after an entire ramp run has been spliced together. First, layout all ramp handrails along the sides of the ramp run. Starting with the shortest ramp section, attach the double post handrail assembly. Attach each post by aligning the bottom post hole to the post flange hole then run a carriage bolt through both holes and fasten with a jam nut. Next run a carriage bolt through the ramp frame and ramp post and fasten with a jam nut (Fig.4.4). *Note: to align top set of holes, complete post to flange attachment first then hold ramp post with one hand and apply downward pressure to run carriage bolt through with the other hand.*

Before attaching the single post handrail assemblies, nest a handrail splice into the top double post handrail tube as illustrated in Fig.4.9 on page 19. Line top tube of the single post handrail over the splice and then continue attaching single post handrail assemblies the same way as the double post handrail assemblies. Repeat this process at each ramp post location. After all posts have been attached, slide the bottom handrail tubes until they are even with the top tubes and splice together (Fig.4.9, pg.19). After all handrails have been attached to the ramp, go back through and tighten the set screw in all of the splices.

## 4.2.1 Entrance Assembly (bottom ramps)

*Note: Entrance assembly will only be necessary on bottom ramp runs.*

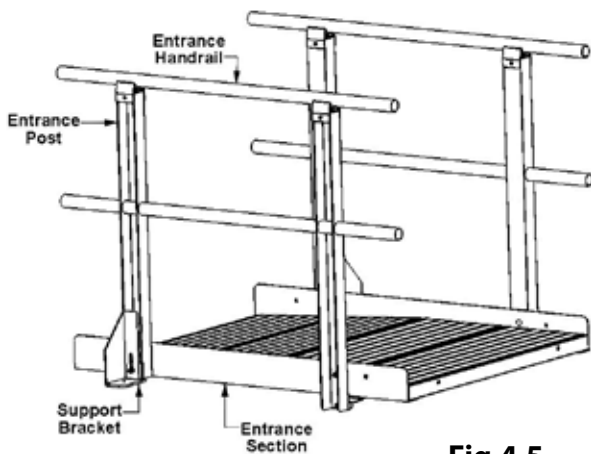


Fig.4.5

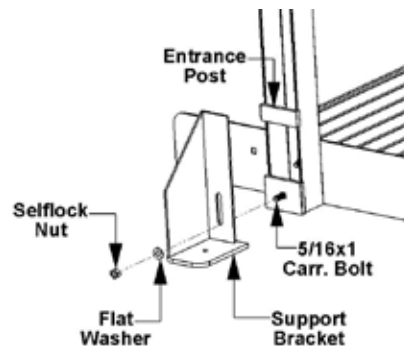


Fig.4.6

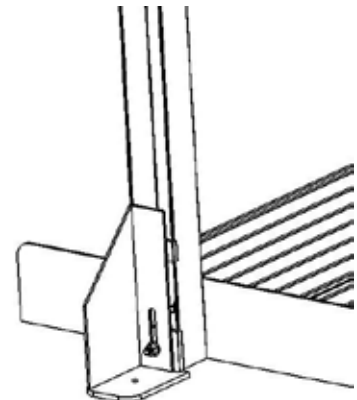


Fig.4.7

**4.2.1 Entrance Assembly:** Locate the entrance post. The entrance post has plates welded to them to attach the support brackets at the beginning of the entrance section (**Fig.4.6**). Install this post using only one bolt to the bottom of the entrance ramp section in the same manner as all other handrail posts (found in **Section 4.2**, pg.17). Continue installing and splicing all handrail assemblies for bottom ramp run (go to **Sections 4.2 & 4.3**; repeat as needed). Attach the support brackets by running a carriage bolt through the square hole of entrance post plate, place the slotted hole of the support bracket over the carriage bolt and fasten using a flat washer and self locking nut (**Fig.4.6**), do not tighten all of the way down.

After the ramp has been positioned in its final resting place, adjust support brackets so they are sitting flat on the resting surface (**Fig.4.7**). Tighten hardware all of the way down. Using the hole in the bottom of the support bracket, anchor the ramp down into resting surface. Securing ramp to resting surface will provide the strength needed for the entrance post.

## 4.3 Handrail Splice Installation

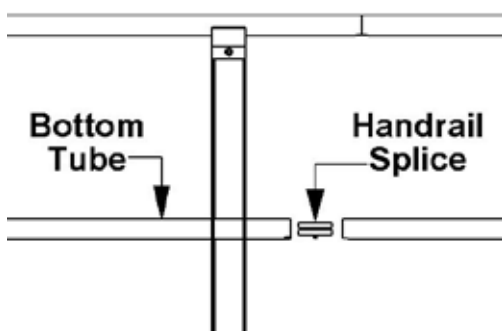


Fig.4.8

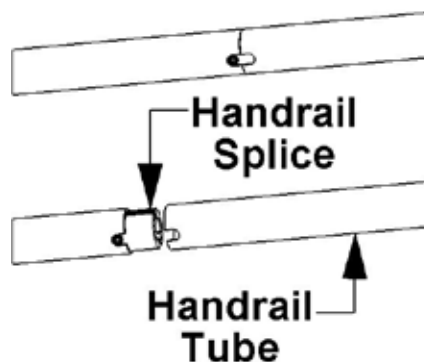


Fig.4.9

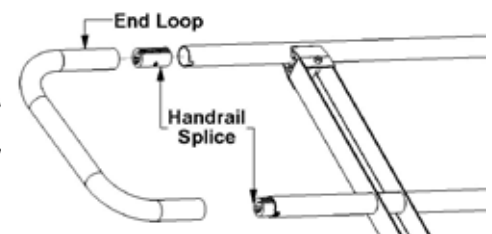


Fig.4.10

**4.3 Handrail Splice Installation:** The handrail splice will be used at each handrail tube transition to connect the handrail tubes together giving the handrail the look and feel of one continuous tube. With the handrail splice in place, nest the set screw inside the notch in the bottom of the tube, pull handrail tubes together. Using an allen wrench, tighten the set screw in the handrail splice (**Fig.4.9**). To attach any of the various end loops slide a handrail splice in each tube at the end of the ramp and slip the end loop over the handrail splice, making sure there is no gap between the handrail tube and the end loop (**Fig.4.10**). Tighten down set screw.

## 4.4 Ramp to Landing Attachment

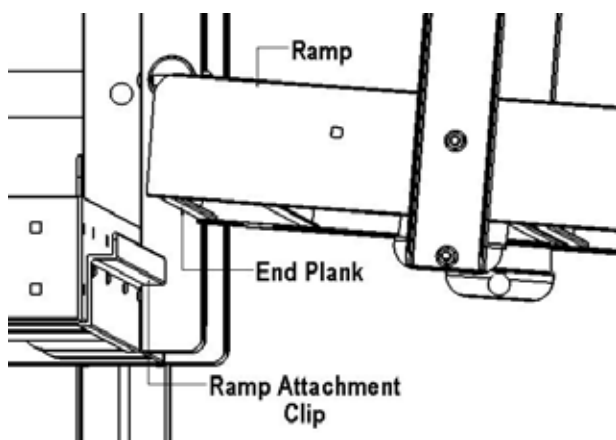


Fig.4.11

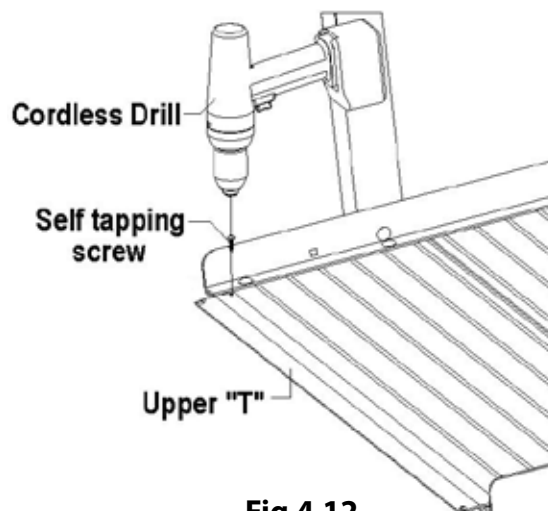


Fig.4.12

**4.4 Ramp to Landing Attachment:** Before attaching ramp to platform, make sure **Section 3.8** on page 17 has been completed. Place the end plank of ramp over the ramp attachment clip (**Fig.4.11**). Going in an upward direction, any ramp to platform transition will create a gap. Place Upper "T" between the platform and ramp to cover this gap. Attach upper "T" in all four corners using self-tapping screws and cordless drill.

If your ramp attaches to a preexisting landing then attach upper "T" centered to the top of ramp using self tapping screws and cordless drill (**Fig.4.12**). Then securely position ramp on preexisting landing using upper "T".

## 4.5 Leg Attachment & Adjustment

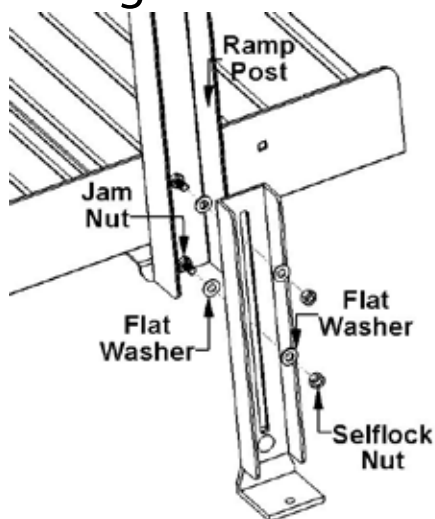


Fig.4.13

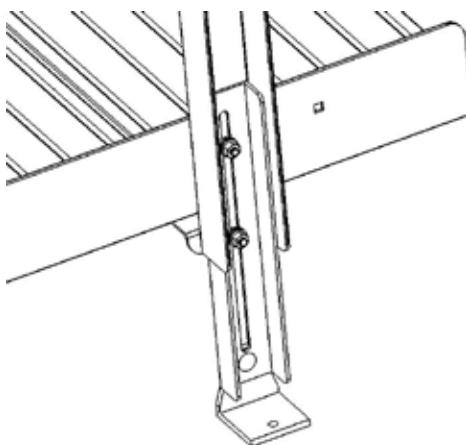


Fig.4.14

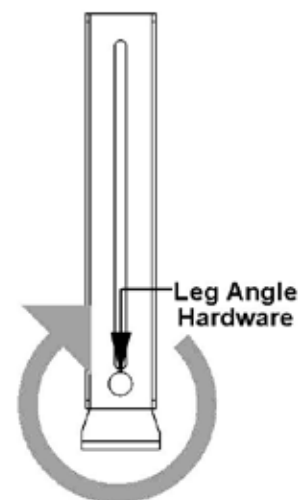


Fig.4.15

**4.5 Leg Attachment & Adjustment:** With the ramp run completely assembled and positioned in the final resting location the legs can now be attached and adjusted. Place a washer over the carriage bolts and jam nuts used to attach the ramp post, place leg inside of the ramp post with carriage bolts coming through the slotted hole of the ramp leg, and fasten with another flat washer and self locking nut (**Fig.4.13**). Slide the leg down until the angle of the leg makes solid contact with the resting surface, loosen the leg angle hardware so it sits flush on the resting surface and re-tighten all hardware.

## 4.6 Long Leg Supports (ramps)

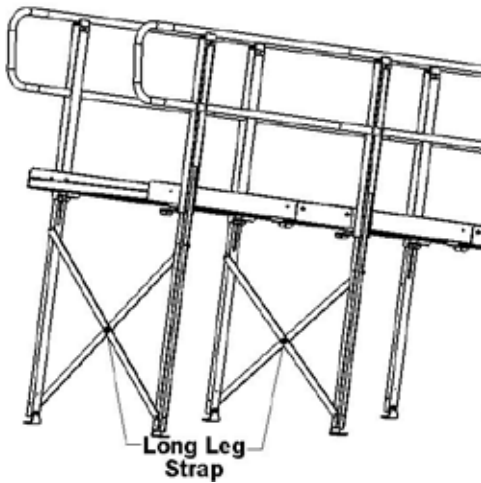


Fig. 4.16

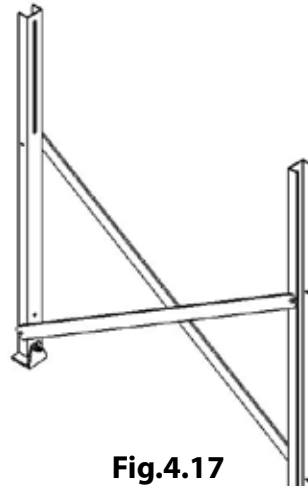


Fig. 4.17

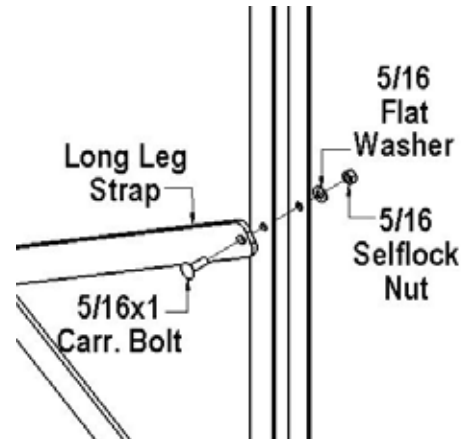


Fig. 4.18

**4.6 Long Leg Support:** Long Leg Supports are required on any ramp with a rise of 36" or greater. Two leg brace straps will be required at each location requiring long leg supports. Attach the first leg brace strap to the leg channel, using the slotted hole at the end of the leg brace strap and the round hole punched in the leg channel, run a carriage bolt through both and fasten with washer and self locking nut on the inside of the leg channel (**Fig. 4.18**). Finger tighten only, and attach the next strap on the other side of the ramp at the opposite end of the leg. Once hardware has been installed at both ends of the leg brace strap tighten hardware all of the way down (**Fig. 4.17**). Repeat these steps on the other side of the legs running the straps the opposite direction so that the leg brace straps form an X between the ramp legs.

## 5.1 Hurricane Tie Down Kit (Platforms)

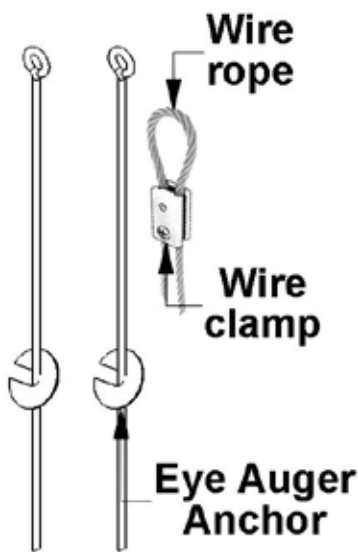


Fig.5.1

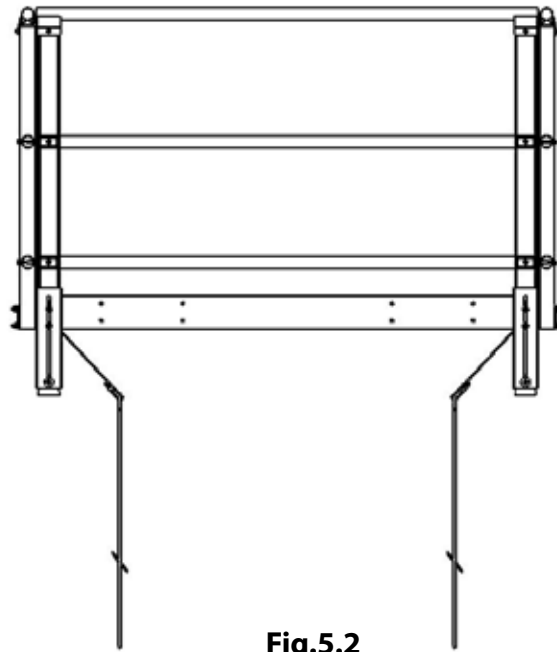


Fig.5.2

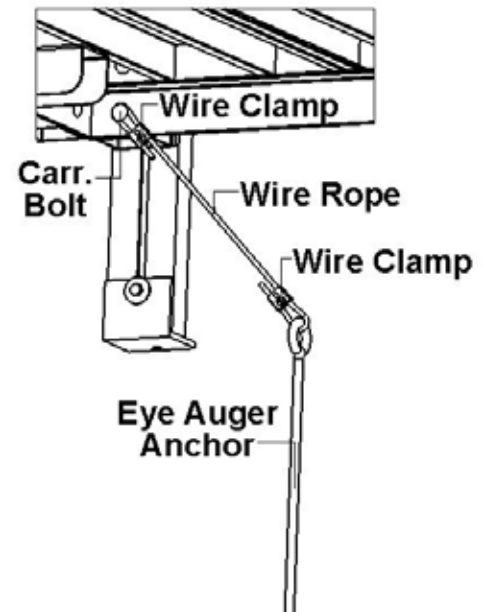


Fig.5.3

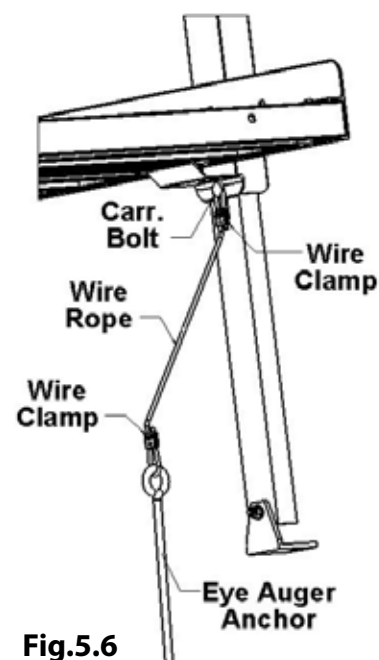
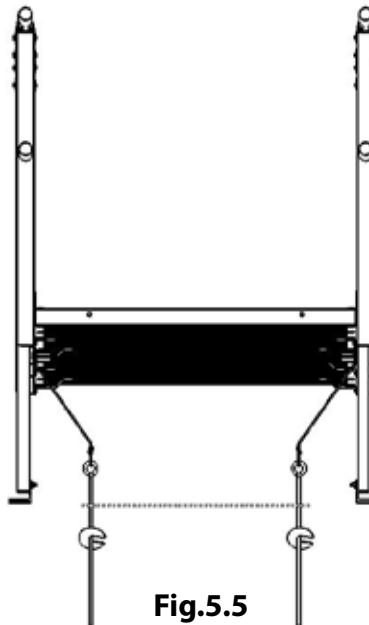
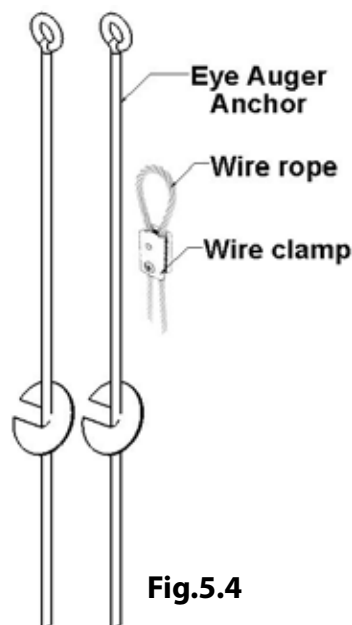
**5.1 Hurricane Tie down Kit (Platforms):** The field conditions will determine the location of the tie downs. Generally the anchors should be installed opposite from one another. The PVI Modular Ramp System will have to be fully assembled and installed to determine the exact anchor locations; it may be necessary to temporarily reposition components to install the anchors. For platforms an anchor needs to be installed at each corner, by loosening the lower carriage bolt at the corner post location. Run the wire rope through the wire clamp to form a loop, place the loop around the head of the carriage bolt securing the wire rope between the carriage bolt and platform, cinch wire rope and retighten hardware. Install the auger into the ground as vertical as possible, using a ½" steel rod or similar item to screw the anchor into the ground. Turn anchor into ground until only the eye is exposed (**Fig.5.2**). Run the wire rope through the wire clamp, and the eye of the anchor forming a loop through the anchor run wire rope back through the wire clamp (**Fig.5.3**). Pull wire rope tight and tighten the screws in the wire clamp. Cut off excess wire. Tape off the ends of the wire rope to ensure the wire will not fray, using electrical tape.

**!!WARNING!!** Prior to installing the anchors into the ground, ensure that any underground electrical conductors, natural gas lines, water/drain lines and/or other interferences are located and will not hinder the installation.

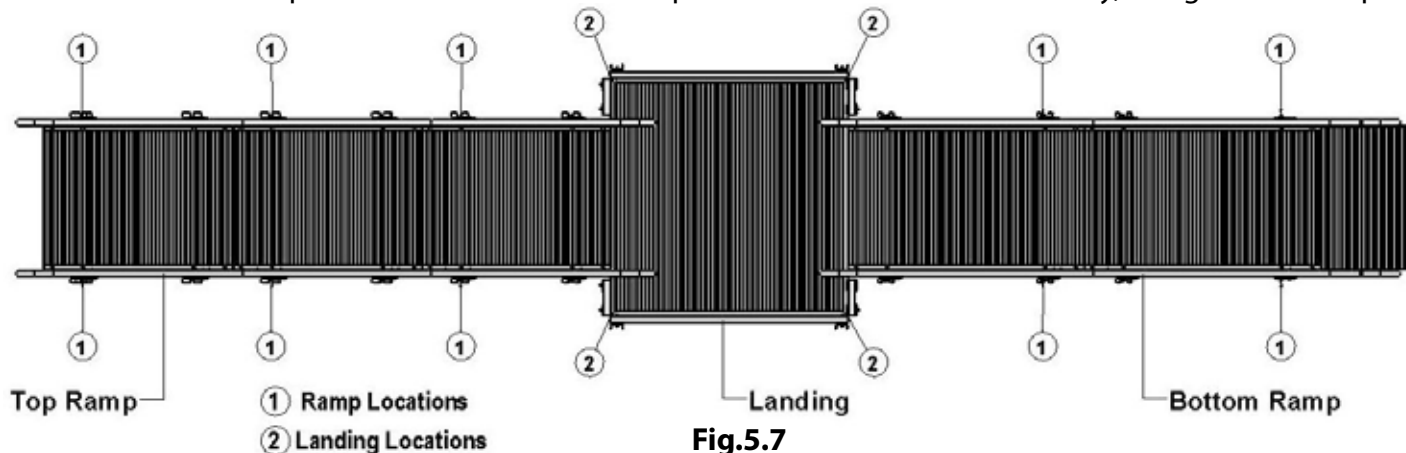
**!!WARNING!!** Do not use concrete anchors in asphalt. Asphalt is not considered a suitable anchoring surface. If installing on asphalt, holes will have to be made in asphalt, and the anchor auger installed into the ground.

**!!WARNING!!** Regularly inspect installation for any loose wire, fasteners, auger anchors, etc.

## 5.2 Hurricane Tie Down Kit (Ramps)



**5.1 Hurricane Tie down Kit (Ramps):** Ramp section will require a tie down on each side of the ramp section across from one another, at the lower post location of each ramp section. Start by loosening the carriage bolt at the lower post location. Run the wire rope through the wire clamp to form a loop, place the loop around the head of the carriage bolt securing the wire rope between the carriage bolt and ramp flange, cinch wire rope and retighten hardware. Install the auger into the ground as vertical as possible, using a ½" steel rod or similar item to screw the anchor into the ground. Turn anchor into ground until only the eye is exposed (**Fig. 5.5**). Run the wire rope through the wire clamp, and the eye of the anchor forming a loop through the anchor run wire rope back through the wire clamp (**Fig. 5.6**). Pull wire rope tight and tighten the screws in the wire clamp. Cut off excess wire. Tape off the ends of the wire rope to ensure the wire will not fray, using electrical tape.



**!!WARNING!!** Prior to installing the anchors into the ground, ensure that any underground electrical conductors, natural gas lines, water/drain lines and/or other interferences are located and will not hinder the installation.

**!!WARNING!!** Do not use concrete anchors in asphalt. Asphalt is not considered a suitable anchoring surface. If installing on asphalt, holes will have to be made in asphalt, and the anchor auger installed into the ground.

**!!WARNING!!** Regularly inspect installation for any loose wire, fasteners, auger anchors, etc.



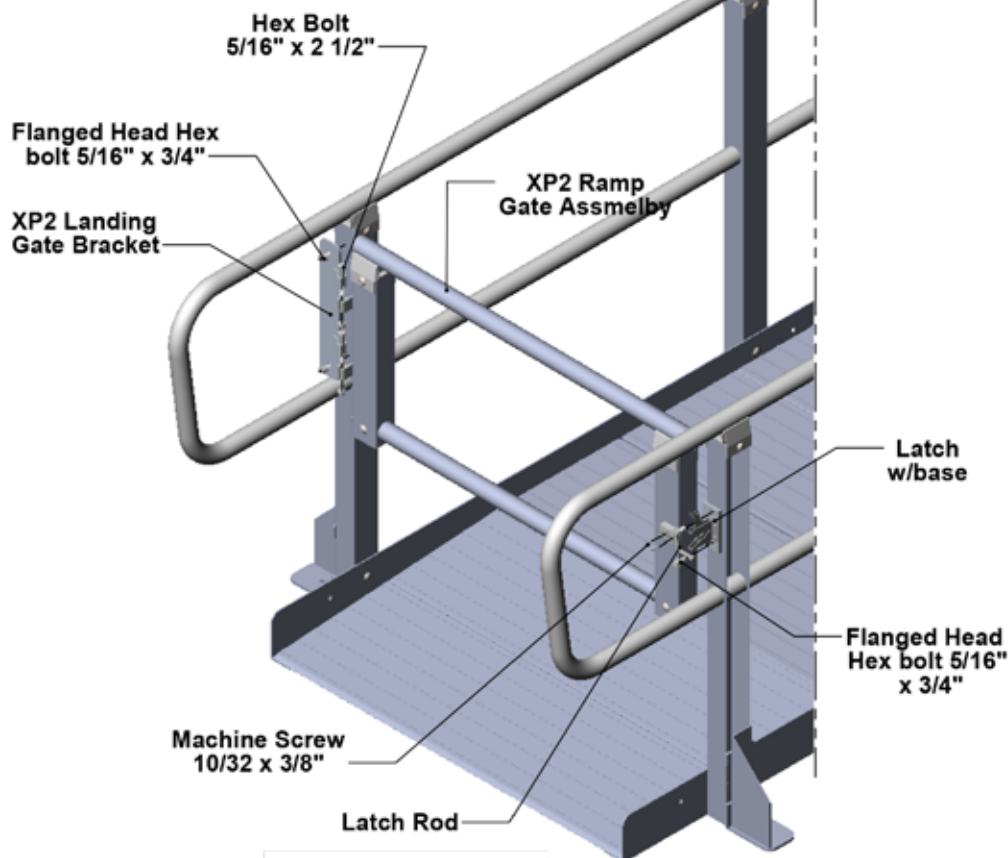
## 5.3 Gate Assembly

### Parts List

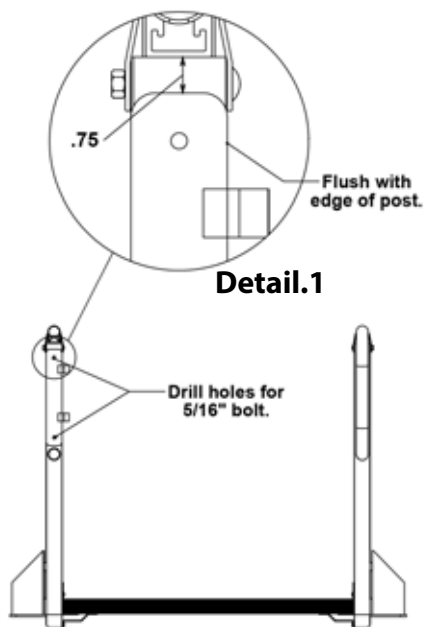
- 1 - XP Ramp Gate Assembly 34 1/2"
- 1 - XP Landing Gate Bracket
- 1 - Latch w/base
- 1 - Latch

### Hardware List

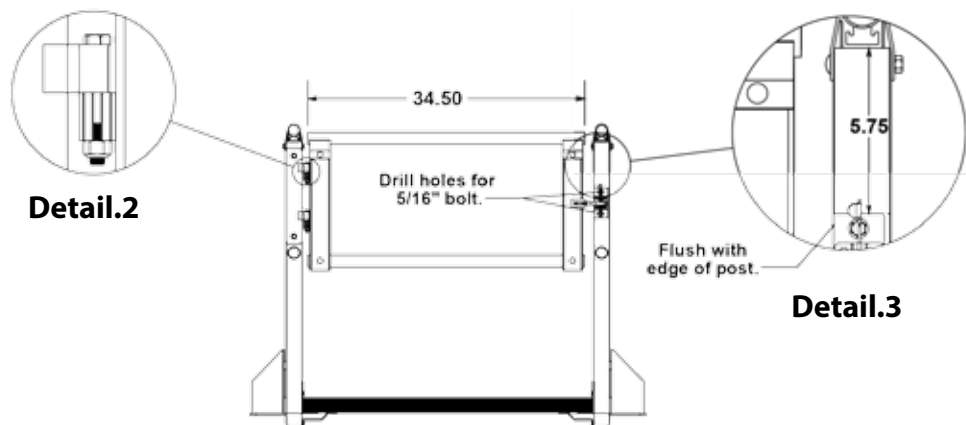
- 4 - Flanged Hex Head Bolt 5/16" x 3/4"
- 2 - Hex Bolt 5/16" x 2 1/2"
- 6 - 5/16" Lock nuts
- 4 - 5/16" Washer
- 6 - Machine Screw 10/32 x 3/8"



**Fig.5.8**



**Fig.5.9**



**Fig.5.10**

**5.3 Gate Assembly:** Place XP landing gate bracket 3/4" down and flush with edge of post (**Detail.1**). Mark holes and drill holes in post for a 5/16" bolt. Attach with 5/16" x 3/4" flanged hex head bolts, washers, and lock nuts. When attaching be sure hinges on brackets face to the inside of ramp section (**Fig.5.9**). Attach latch rod to gate assembly with 10/32 x 3/8" machine screws. Attach gate assembly to bracket with 5/16" x 2 1/2" hex head bolts and lock nuts (**Detail.2**). Gate should swing freely. Do not over tighten. Place latch with base on post approximately 5 3/4" down and flush with edge of post (**Detail.3**). Swing gate over to be sure latch rod engages latch. You may have to move latch up or down to line up properly. Mark holes and drill holes in post for a 5/16" bolt. Attach with 5/16" x 3/4" flanged hex head bolts, washers, and lock nuts (**Fig.5.8**).



## 5.4 Single Stair Installation

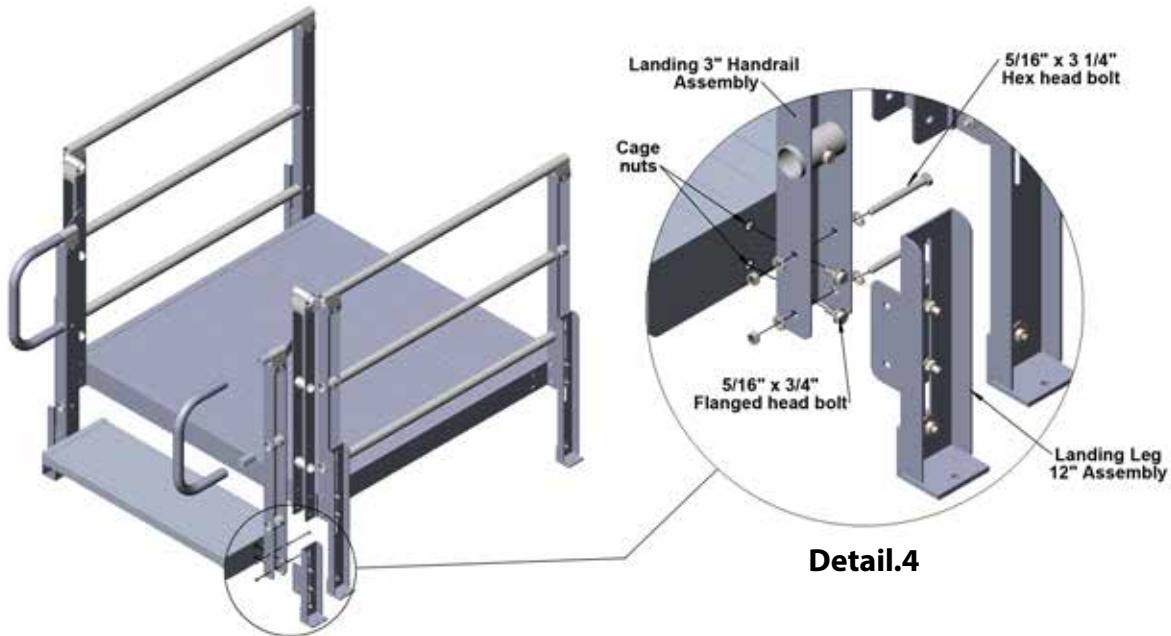


Fig.5.11

### Parts List

- 1 - XP 1 Step Plank Assembly
- 2 - Landing 3" Handrail Assembly
- 2 - Landing Leg 12" Assembly
- 2 - XP 1 Step Stair Bracket Left and Right

### Hardware List

- 4 - 5/16" x 3 1/4" Hex Head Bolt
- 8 - 5/16" x 3/4" Flanged Hex Head Bolt
- 16 - 5/16" Lock nuts
- 16 - 5/16" Washer
- 4 - Handrail Splice

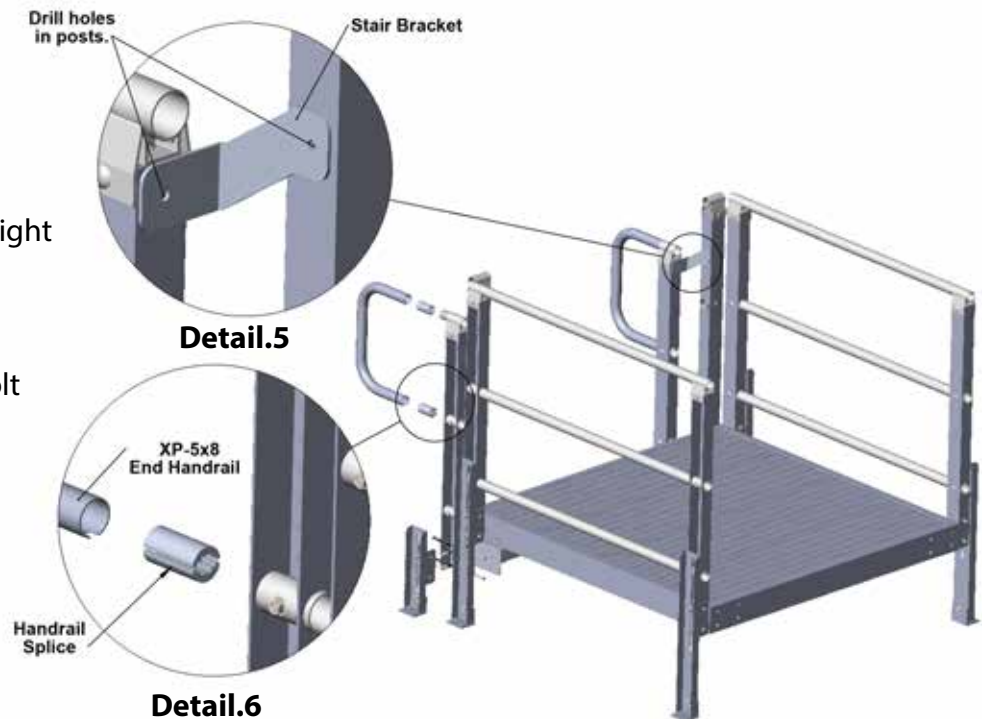


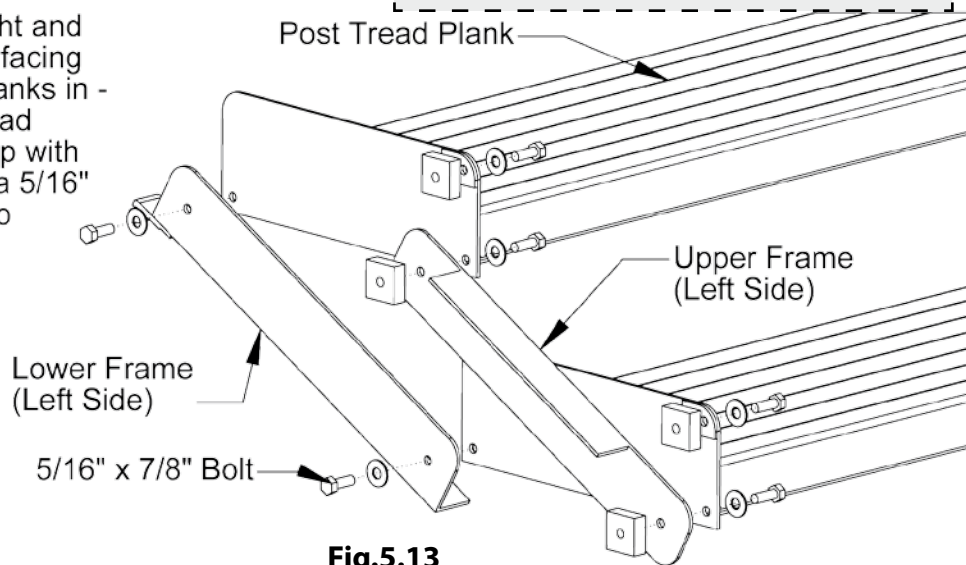
Fig.5.12

**5.4 Single Stair Installation:** Attach post to plank with 5/16" x 3/4" flanged hex head bolts. Attach leg assemblies to posts with 5/16" x 3 1/4" hex head bolts, washers, and lock nuts (**Detail.4**). Adjust legs to the height required and tighten down. Line up step in front of opening on landing. Place stair bracket, left and right, at location shown and mark where holes are. Drill holes for 5/16" hardware at marked locations on posts. Attach brackets with 5/16" x 3/4" flanged hex head bolts, washers, and locknuts (**Detail.5**). Attach end handrail to posts on step with handrail splice. Tighten down set screws in handrail splice (**Detail.6**). Final step is to secure step to ground through holes in leg base.

## 5.5 Stair Frame Assembly

*Note: a 2 Step Stair is illustrated, but assembly is the same for 3 & 5 step stairs.*

Place two lower frame angles, right and left, on floor with 1 1/2" lip of angles facing each other. Place two post tread planks in-between with single hole on post tread plank toward the back. Line holes up with holes in lower frame angles. Insert a 5/16" x 7/8" hex bolt with 5/16" washer into each of the holes connecting lower frame angles to post tread plank. Finish with a 5/16" washer and lock nut on opposite side. (See **Fig.5.13**)

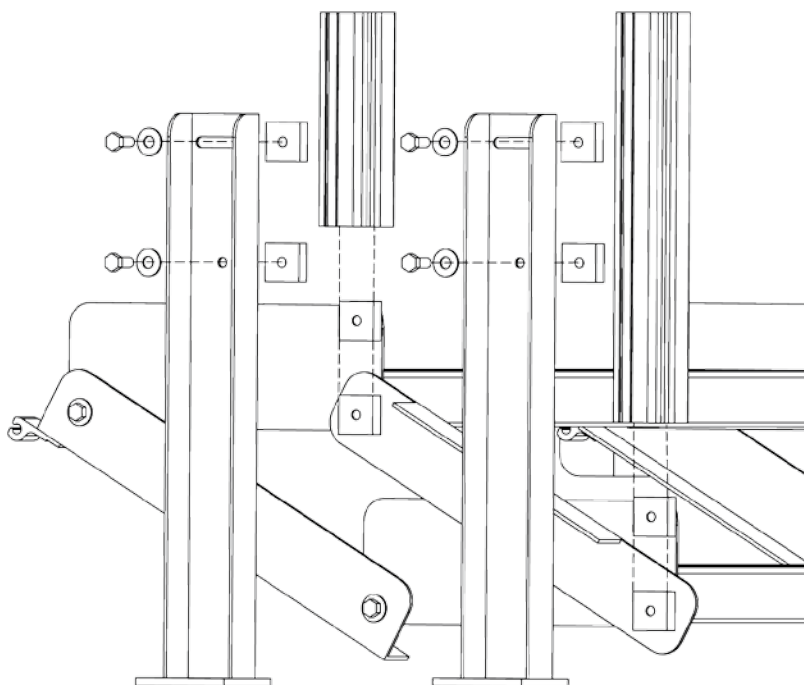


**Fig.5.13**

With post tread plank connected to lower frame angle, connect the post tread plank to the upper frame angle. Place one upper frame angle on each side of stairs with larger notch facing down and 1 1/2" lip on top facing out.

(See **Fig.5.13**) Align upper frame angle with bottom hole towards the front of post tread plank. Insert a 5/16" x 7/8" hex bolt with a 5/16" washer into each of the holes connecting upper frame angles to post tread plank. Finish with a slide nut on opposite side. Insert a 5/16" x 7/8" hex bolt in remaining holes, with a 5/16" washer, and slide nut on opposite side. (See **Fig.5.13**) Now you should have successfully assembled the basic stair frame.

Next, install the 35 1/2" post. Four posts will be located at all four area's where two slide nuts line up together. With welded tab on post facing to the inside, slip the slide nut into the groove of post. Continue sliding post down into other slide nut until welded tab on post sits directly on top of post tread plank. (See **Fig.5.14**) Repeat steps with remaining three posts. You may tighten only top bolts on post tread plank that connect post to post tread plank.



**Fig.5.14**

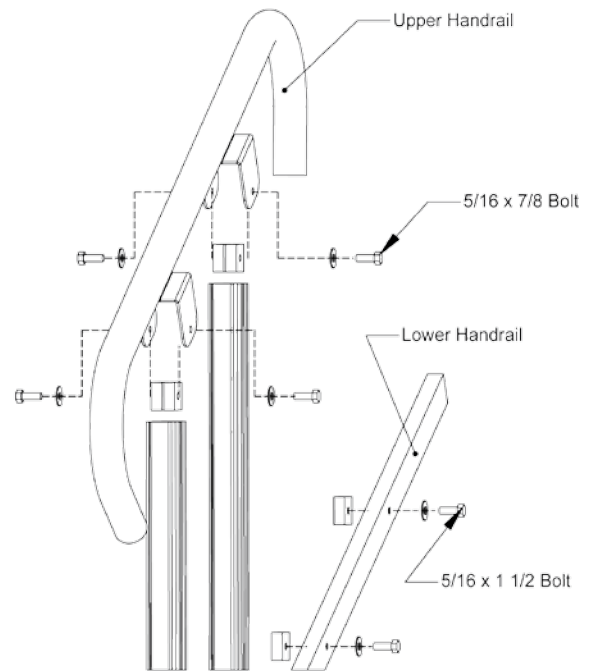
Next, install legs. With channels of leg facing you, insert a 5/16" x 7/8" hex bolt with a 5/16" washer into slot at top of leg and single hole 4 3/4" down. Place slide nut on opposite side. Repeat these steps on remaining three legs. (See **Fig.5.14**) The longer legs, if different, will

always go on the back 35 1/2" posts. Now line up the slide nuts with grooves on posts. Begin sliding the legs up posts inserting the second slide nut when you get to it. Once attached, you may temporarily tighten them to keep them in place. Repeat these steps on the opposite side. (See **Fig.5.14**)

## 5.6 Stair Handrail Assembly

Next, install lower 1 1/2" x 3/4" handrail tube. Insert 5/16" x 1 1/2" hex bolt in holes with a 5/16" washer and slide nut on opposite side. With shorter end of tube towards bottom of stairs, line slide nuts on lower handrail up with inside groove of 35 1/2" post. (NOTE: Remove cap at top of each post to install handrail.) Slide lower handrail down until approximately half way down post. Tighten a little so it does not slide down. (See **Fig.5.15**)

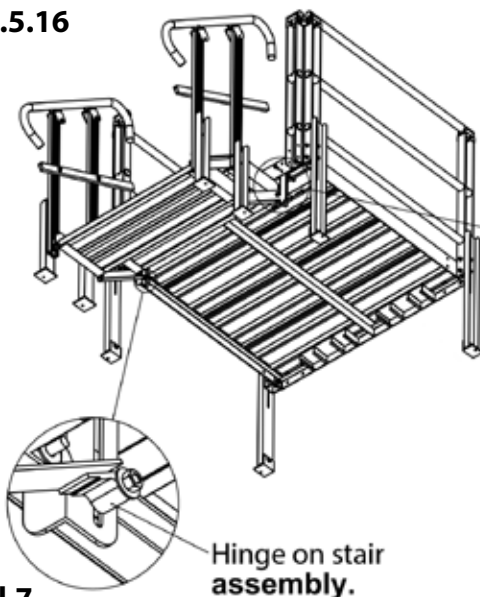
Next, take the two upper handrails and insert into each hole on the brackets a 5/16" x 7/8" hex bolt with 5/16" washer and a slide nut on opposite ends. Line slide nuts up with top of each post, placing each slide nut in with the grooves on each side of the posts. Slide these down until handrail rests on posts. Tighten upper and lower handrails down snug. (See **Fig.5.15**)



**Fig.5.15**

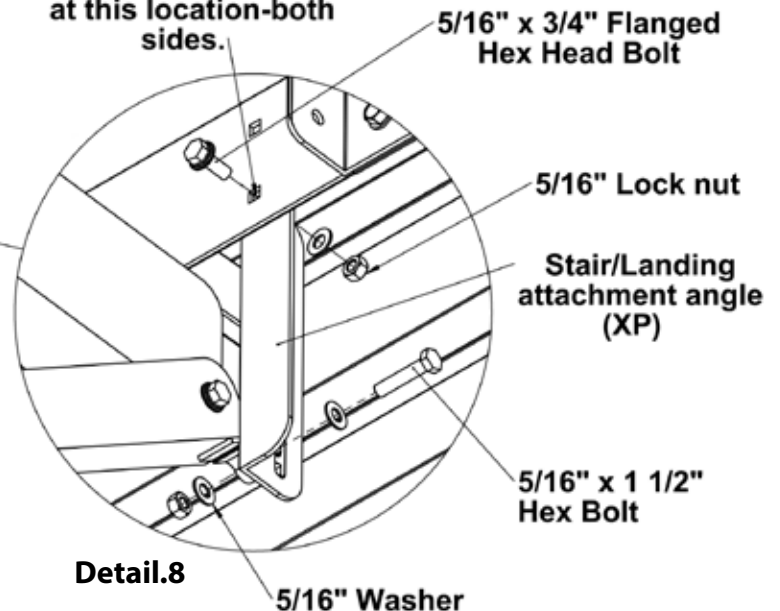
## 5.7 Stair to Landing Attachment

**Fig.5.16**



**Detail.7**

Remove cage nut or mark and drill hole at this location-both sides.



**Detail.8**

**5.7 Stair to Landing Attachment:** Attach stair/landing attachment angles to hinge on stair with a 5/16" x 1 1/2" hex bolts, washers, and lock nuts (**Detail.7**). Do not tighten down. Move stair assembly into position on landing. Center stair assembly in opening and adjust stair/landing attachment angle up and to the inside of the landing. Line up hole in angle with square hole in side of landing. Remove cage nut at that location. If no hole exists at this location, mark where hole is in angle on landing. Drill hole for a 5/16" bolt. Attach angle with a 5/16" x 3/4" flanged hex bolt, washer, and lock nut (**Detail.8**). Level and adjust stairs and tighten down bolts. Anchor legs down to the ground.

