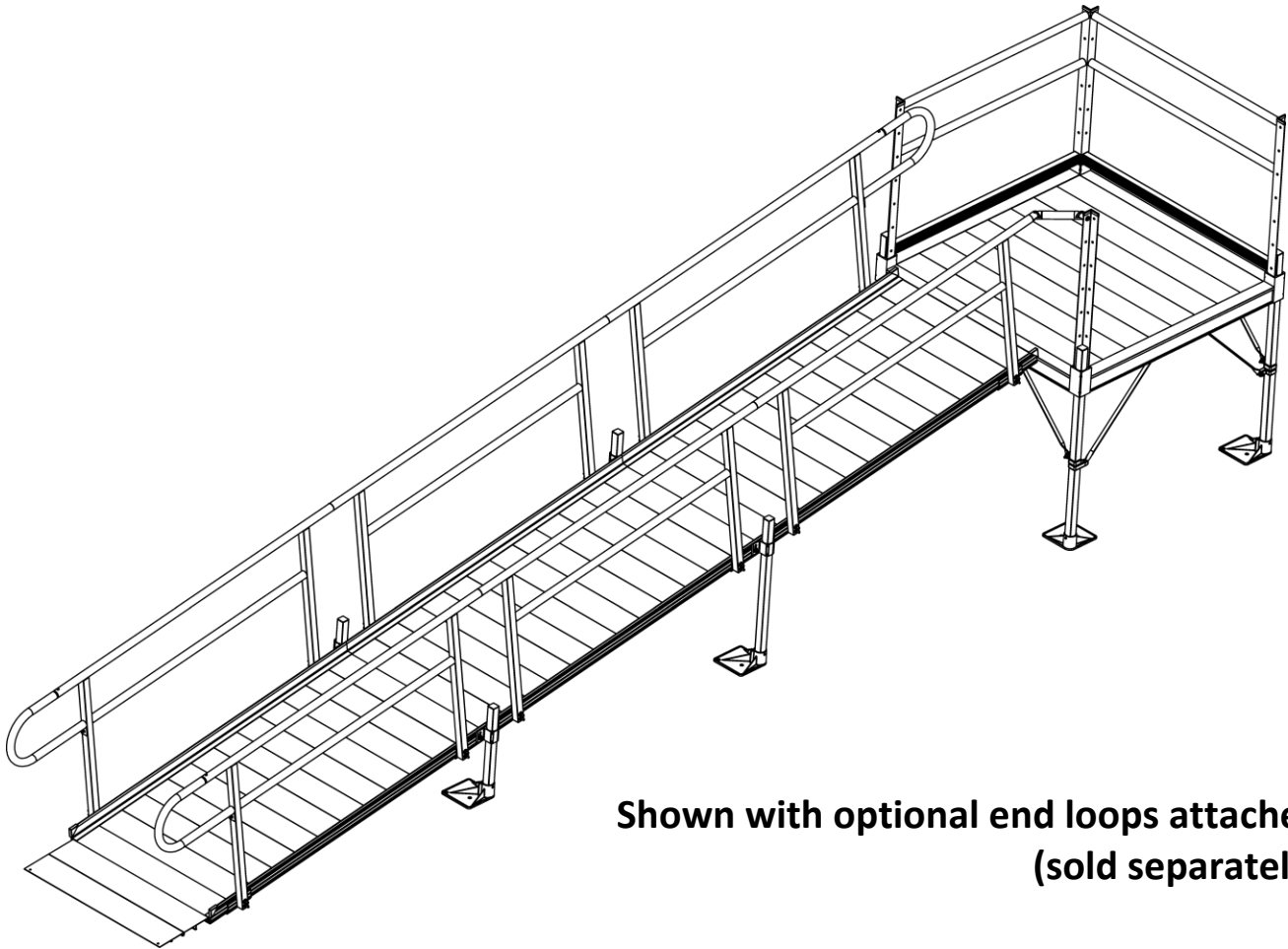




Silver Spring Clearway Modular Ramp Kits





**Shown with optional end loops attached
(sold separately)**

GENERAL GUIDELINES & SAFETY




























- It is the user's responsibility to read and follow all instructions
- Always keep these instructions with the product and review before each use
- It is the responsibility of this product's owner to furnish the instructions to any person that borrows or purchases the product
- Inspect the product before use to ensure it is assembled properly and all parts are in safe working order and free of defects
- Never modify this product in any way
- All circumstances cannot be addressed in these instructions
- Please use common sense and practice general safety measures when using this product
- Parts and/or instructions are subject to change without notice

1-888-651-3431

SYMBOLS

-  The **WARNING** symbol indicates a potentially hazardous condition/situation. The safety warnings throughout this manual, and on your equipment, if any, are for the protection of people and property. Failure by any operator to abide by safety warnings will result in a waiver of all liabilities, loss of your warranty, and could result in equipment damage and or failure, property damage, risk of serious bodily injury, and or death. The symbol may appear in various colors and in conjunction with other symbols and with or without the written word "WARNING".
-  The **NOTE** symbol indicates important information. Failure to obey all notes could result in improper operation, less-than-optimum equipment performance, and at the sole discretion of the equipment manufacturer, may void your warranty. The symbol may appear in various colors and in conjunction with other symbols and with or without the written word "NOTE".

WARNINGS

-  Maximum weight capacity is 1,000 lbs.; never exceed weight capacity.
-  Prior to assembly and use, read and follow all instructions, warnings, and labels. Following all instructions and obeying all warnings before and during use is necessary for safe operation. Do not remove labels. For additional information or to obtain copies of instructions or labels, call 1-888-651-3431.
-  For residential use only.
-  This product must be installed by a qualified installer and maintained as specified in this manual and per your applicable local codes.
-  Before use with mobility equipment, refer to your mobility equipment's owner guide for acceptable ramp usage, including proper slope/incline, chair direction, etc.; never exceed its recommendations.
-  If needed, use a qualified helper when using the system.
-  Always use a lap belt if using the system with mobility equipment.
-  Handrails are required and must be installed.
-  Only use components supplied by the manufacturer with the system.
-  Before each use, check the system for worn, loose, or damaged parts. If you find any of these conditions, do not use the system and contact your installer for service or repairs. Failure to do so may result in serious injury.
-  Do not use the system if it is damaged or unstable.
-  Do not tamper with, attempt to repair, or modify any portion of the system.
-  Ensure that the landings the system will be placed on are substantial and of sound construction.
-  Use only if the secure, unobstructed, level landings can support the weight capacity of the system (1,000 lbs.).
-  Before each use, confirm the system is secure and assembled per the instructions. Contact your installer for any necessary adjustments.
-  Use only if sufficient maneuvering room is available at both ends of the system to assure safe travel when entering and exiting the system.
-  The system may be slippery in wet conditions; use caution as traction may be reduced.
-  Before each use, remove ice, snow, dirt, leaves, and other debris on contact surfaces. Please refer to 'MAINTENANCE AND SAFETY' and 'DEICING' sections in the assembly manual for more information.
-  Do not lean on, walk on, or otherwise bear weight on the system until assembly is complete.
-  Do not run, jump, or play on or around the system.
-  Do not sit, stand, or climb on handrails or gates.
-  Do not place anything on, under, or attach anything to the system including, but not limited to, planters, lights, decorations, etc.
-  Improper use of the system could result in serious injury.
-  Always exercise caution when handling, assembling, and or using the system.
-  Aluminum conducts electricity. Do not use the system during electrical storms or in proximity to damaged or exposed wiring.
-  Properly support and restrain the system in transit or storage.
-  For additional care, usage, or general safety information, please call 1-888-651-3431.

TOOLS AND HARDWARE TYPICALLY REQUIRED

- ✓ 1/2" SOCKET OR 1/2" WRENCH
- ✓ 9/16" SOCKET OR 9/16" WRENCH
- ✓ 5/16" SOCKET OR 5/16" WRENCH
- ✓ TORQUE WRENCH
- ✓ 3/16" ALLEN WRENCH
- ✓ POWER DRILL
- ✓ #2 PHILLIPS SCREWDRIVER
- ✓ PLIERS
- ✓ 1/8" DRILL BIT
- ✓ 5/16" DRILL BIT
- ✓ BOX KNIFE
- ✓ HAMMER
- ✓ LEVEL
- ✓ FILE
- ✓ RUBBER Mallet
- ✓ 1/4" MASONRY DRILL BIT (IF INSTALLING TO CONCRETE)
- ✓ DIGGING TOOLS (IF AN OBSTACLE NEEDS TO BE REMOVED)
- ✓ HACKSAW
- ✓ 25' TAPE MEASURE
- ✓ CONSTRUCTION ADHESIVE

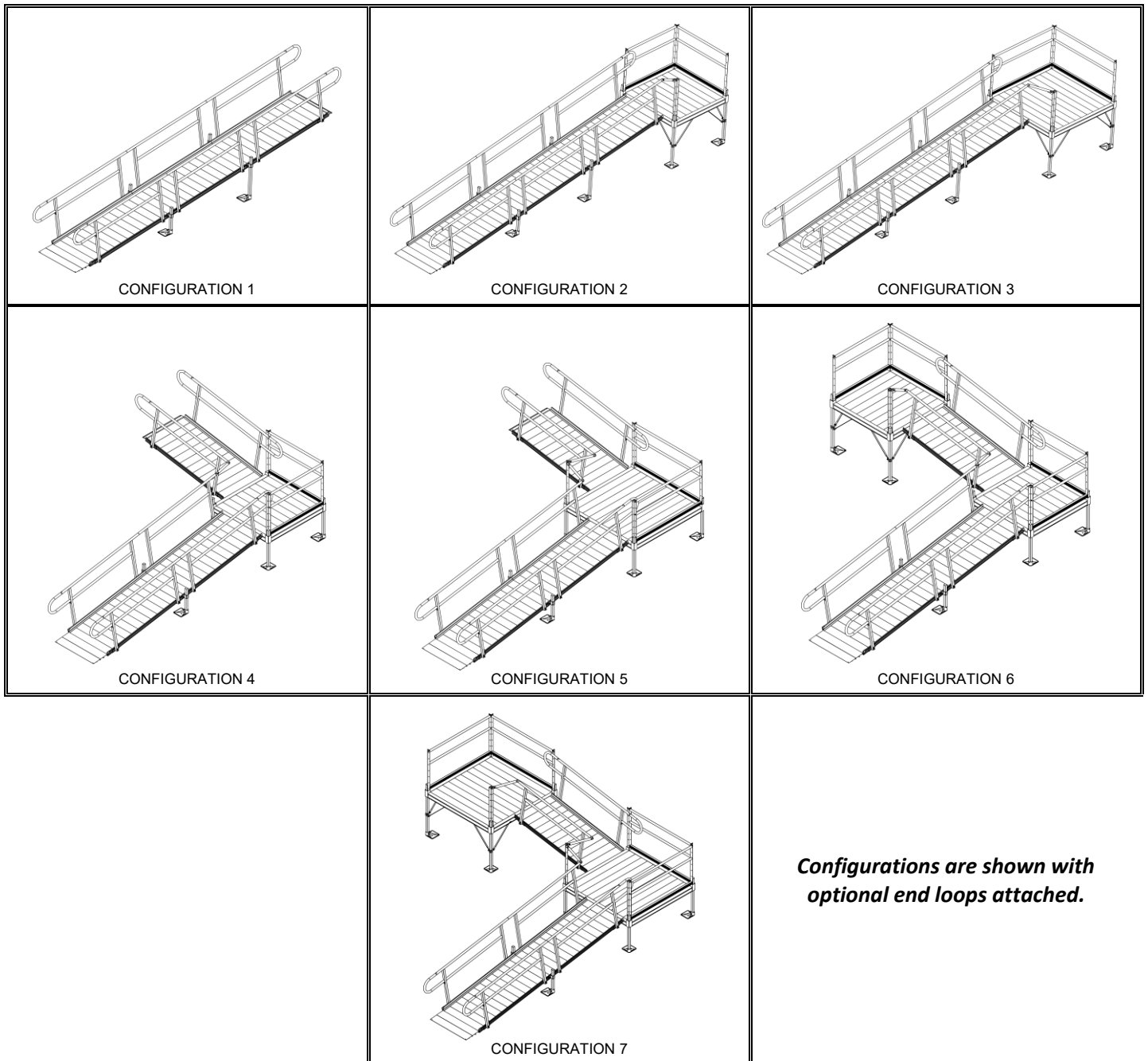
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1. CONFIGURATIONS

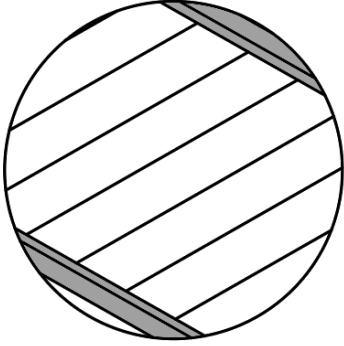
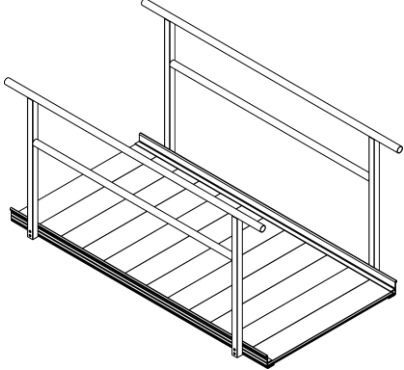
Silver Spring Clearway Modular Ramp Kits are available in four configurations: straight, straight with top, L-shaped, L-shaped with top and turn. There are two platform sizes available, 4' x 4' and 5' x 5'. All systems feature solid surface tread and two-line handrails.

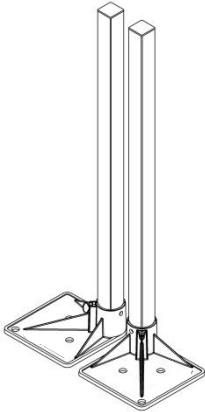
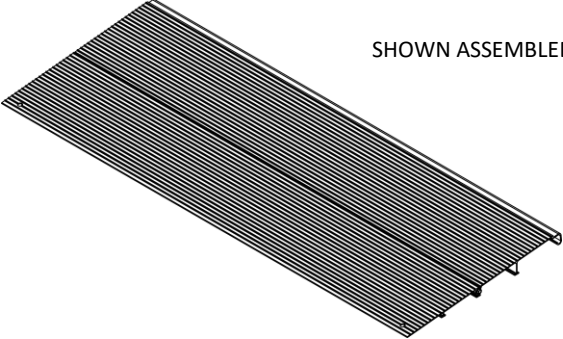
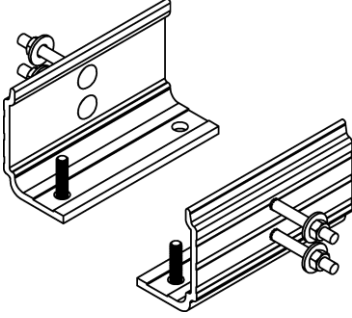
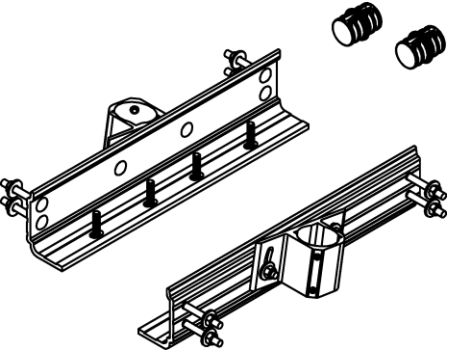
CONFIGURATION #	STYLE	AVAILABLE SIZES
CONFIGURATION 1	STRAIGHT	2' INCREMENTS RANGING FROM 4'-8' IN LENGTH, AND 1' INCREMENTS RANGING FROM 10'-24' IN LENGTH
CONFIGURATION 2	STRAIGHT W/ 4' X 4' TOP PLATFORM	1' INCREMENTS RANGING FROM 10'-24' IN LENGTH
CONFIGURATION 3	STRAIGHT W/ 5' X 5' TOP PLATFORM	1' INCREMENTS RANGING FROM 10'-24' IN LENGTH
CONFIGURATION 4	L-SHAPED W/ 4' X 4' TURN PLATFORM	1' INCREMENTS RANGING FROM 10'-24' IN LENGTH
CONFIGURATION 5	L-SHAPED W/ 5' X 5' TURN PLATFORM	1' INCREMENTS RANGING FROM 10'-24' IN LENGTH
CONFIGURATION 6	L-SHAPED W/ 4' X 4' TURN AND TOP PLATFORM	1' INCREMENTS RANGING FROM 10'-24' IN LENGTH
CONFIGURATION 7	L-SHAPED W/ 5' X 5' TURN AND TOP PLATFORM	1' INCREMENTS RANGING FROM 10'-24' IN LENGTH



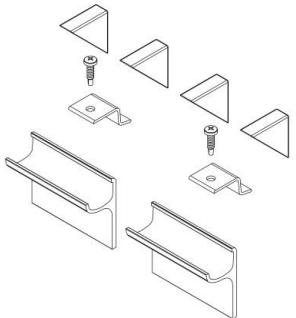
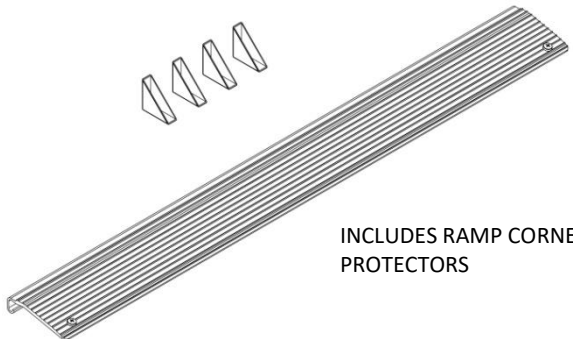

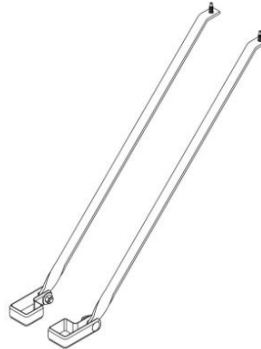
2. BASIC SYSTEM COMPONENTS

Because of varying lengths/configurations, your system may not contain all these basic system components. Identify your system components before you begin assembly.

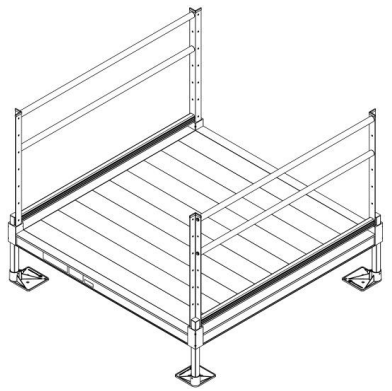
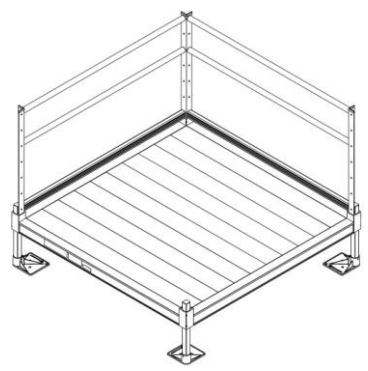
SURFACE	RAMP AND RAMP HANDRAIL
SOLID SURFACE	RAMP W/ TWO-LINE HANDRAIL
	

KEY RAMP COMPONENTS	
SUPPORT LEG PAIRS (VARIOUS LENGTHS)	GROUND TRANSITION 12" X 36"
<p>INCLUDES BASE FEET</p> 	 <p>SHOWN ASSEMBLED</p>
RAMP HANDRAIL END BRACKET (PAIR)	UNIVERSAL CONNECTOR – RAMP TO RAMP
	<p>INCLUDES COMPONENTS TO CONNECT RAMPS AND RAMP HANDRAILS</p> 

KEY RAMP COMPONENTS, CONT'D.

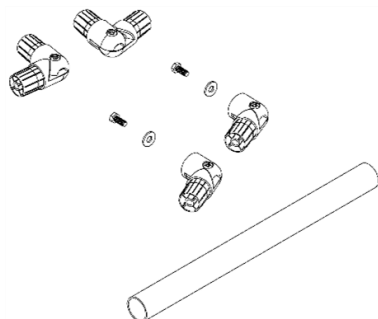
RAMP HANGER PAIR	RAMP UPPER TRANSITION
	 <p data-bbox="1209 462 1461 514">INCLUDES RAMP CORNER PROTECTORS</p>
HANDRAIL END CAP	UNIVERSAL ANGLE BRACE
	

PLATFORMS AND PLATFORM HANDRAILS

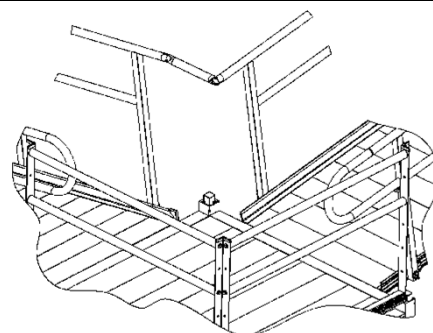
PLATFORM (STRAIGHT ENTRY) W/TWO-LINE HANDRAILS	PLATFORM (TURN FOR LEFT OR RIGHT ENTRY) W/TWO-LINE HANDRAILS
	

CLOSURE

RAMP TO PLATFORM CLOSURE



**SHOWN CONNECTING HANDRAILS TO
PLATFORM ANGLE POST**
(THIS METHOD IS USED ON TOP
PLATFORMS AND 5' X 5' TURN PLATFORMS)

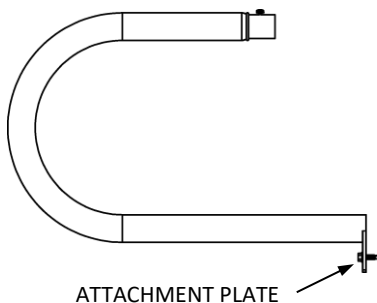


**SHOWN CONNECTING LOWER RAMP
HANDRAILS TO UPPER RAMP HANDRAILS**
(THIS METHOD IS USED ON
4' X 4' TURN PLATFORMS)

CONFIGURATIONS ARE SHOWN WITH OPTIONAL END LOOPS ATTACHED.

OPTIONAL ACCESSORY

UNIVERSAL HANDRAIL END LOOP



3. PLATFORMS

3.1. INSTALL PLATFORMS

- ✎ If your configuration does not include a platform, skip to 'CONNECT RAMP SECTIONS'.
- ✎ Platform handrails are shown for clarity on how to orient platforms in various configurations. Platforms can be configured to direct entry to the left, right, or straight ahead, depending on your specific needs. It is strongly suggested that all platforms and ramps be assembled before installing handrails (see 'HANDRAILS' section).

- 3.1.1. There are two platform arrangements (one or both of these arrangements may be used in an installation). Each arrangement requires the same procedure for assembly.

FIG. 3.1 Straight

FIG. 3.2 Turn

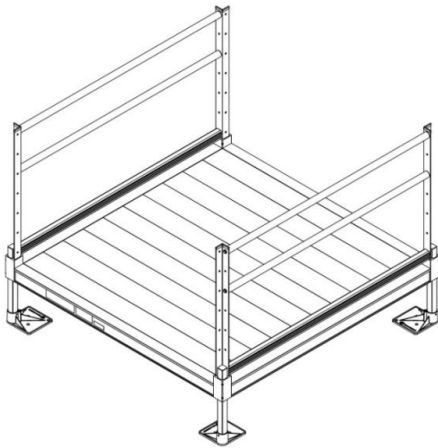


FIG. 3.1

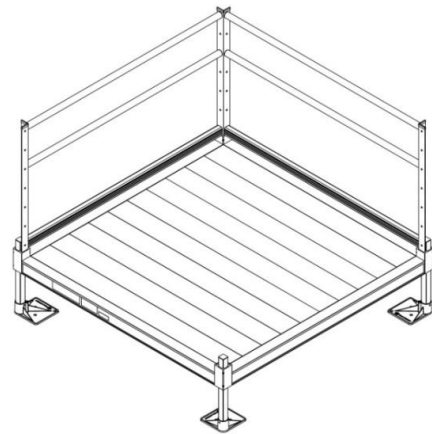


FIG. 3.2

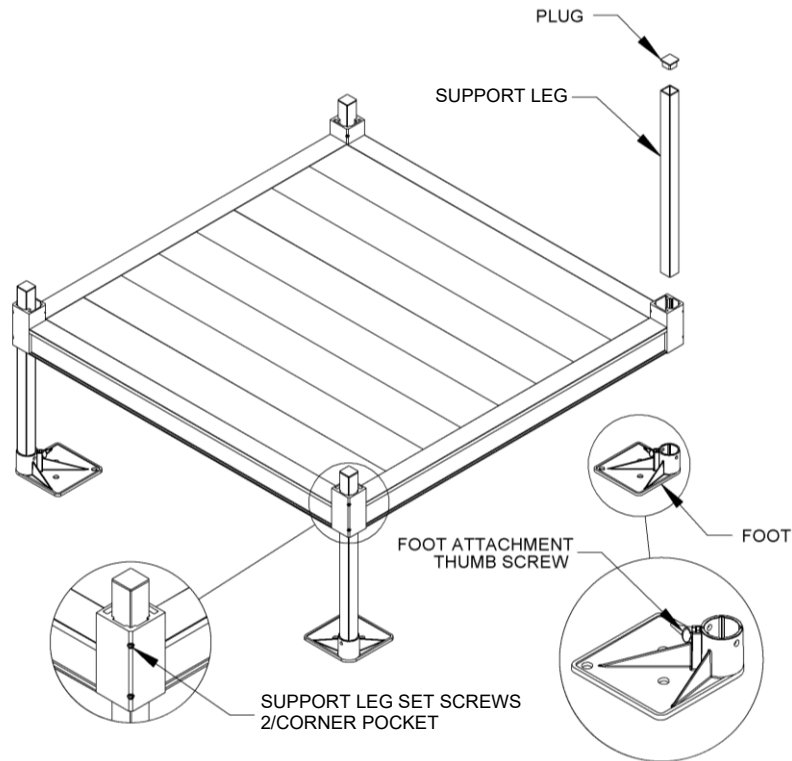
3.2. INSTALL SUPPORT LEGS AND FEET, THEN ADJUST PLATFORM HEIGHT

Support legs, plugs, and feet come in pairs. Legs will come in lengths sufficient to accommodate a range of slope options and some uneven ground conditions.

- 3.2.1. It is recommended that you arrange all the legs provided from longest to shortest prior to installation. Start at the top of the system with the longest legs available, gradually using shorter legs as you progress downward through the system.
 - ⚠ ADA guidelines call for a maximum slope of 1:12 (approximately 5 degrees) and this is the ideal slope for the system. However, the ramps can be installed from 1:14 to 1:6 (approximately 4 to 10 degrees). Do not attempt to install the ramps outside this range.
 - ✎ This arrangement may result in two different-length pairs of legs being used on a single platform, depending on how you decide to configure your setup.
- 3.2.2. Loosen all set screws in the platform corner pockets.
 - 3.2.2.1 The set screws on the outside of the platform are for the platform support legs.
 - 3.2.2.2 The set screws on the inside of the platform (one above the deck and one below the deck) are for the handrail posts.
- 3.2.3. Tip the platform on its side, then slide the support legs into the four platform corner pockets (FIG. 3.3). Adjust the support legs to the approximate platform height needed. Trimming the support legs is optional and can be done for aesthetic reasons if shorter lengths are desired.
 - ⚠ Using a metal file, smooth any sharp edges from the trimming.

- 3.2.4. Use a 3/16" Allen wrench to tighten the upper of the two set screws in the corner pocket, just enough to hold the support leg in place but do not overtighten (the second set screw will be tightened after final height adjustments are complete).
- ⚠ Do not attempt to walk on the platform until all support leg set screws have been tightened securely.
- 3.2.5. Place the platform (with support legs attached) into the upright position.
- ⚠ Do not let the weight of the platform bear on the support legs while tipping the platform upright.

FIG. 3.3



- 3.2.6. Lift each corner of the platform and install a Base Foot ("foot") on each support leg oriented so that the foot extends under the platform (FIG. 3.3).
- ✋ The feet can be oriented in other directions if necessary due to site conditions but may present a tripping hazard if not oriented under the platform.
 - ⚠ It is the installer's responsibility to install the system in a manner that is safe for the people on and around the system and clearly mark any hazards created by the installation.
- 3.2.7. Make sure each foot is fully engaged on the leg and tighten the thumb screw securely.
- ✋ If installing on soft soil it may be necessary to set the foot on a concrete pad.
- 3.2.8. Adjust the final height of the platform by adjusting the legs, one at a time, by loosening the outer set screws in the platform corner pockets. Using a level, adjust the platform height and re-tighten.
- 3.2.9. Once the final height has been adjusted, tighten the second, lower set screw in each platform corner pocket.
- 3.2.10. To allow access to the lowermost hole in the platform post, the support leg must not extend more than 1/2" above the platform corner pockets. Trim the support leg as needed before installing plugs.
- 3.2.11. Insert a plug into the top of each support leg. Use a rubber mallet or similar tool as needed (FIG. 3.3).
- 3.2.12. Ensure all set screws are tightened securely.

3.3. INSTALL UNIVERSAL ANGLE BRACE – PLATFORMS

✎ For added stability, any platform with a walking surface over 36" high requires bracing. The Universal Angle Brace is used for all surfaces with an elevation over 36".

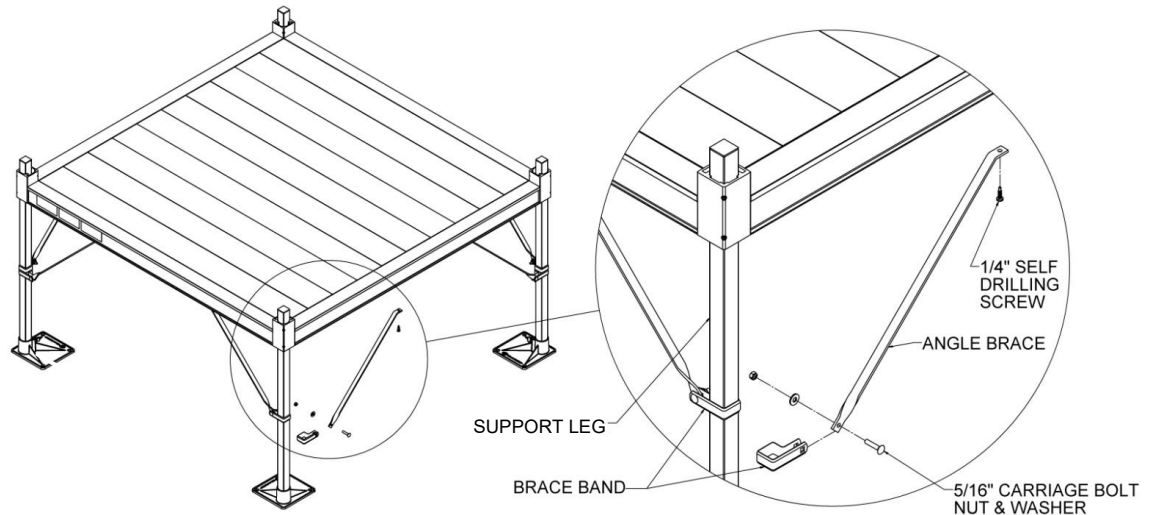
3.3.1. Universal Angle Braces ("braces") come in pairs. Use four pairs per platform (one pair per support leg, or side).

3.3.2. Use two brace bands to secure the ends of the two braces nearest the twist to the support leg using a 5/16" bolt, flat washer, and nut (FIG. 3.4).

3.3.3. Opposite ends of the braces are attached to the bottom of the platform side rail at 90 degrees to each other using a 1/4" x 1" long self-drilling screw (FIG. 3.4).

⚠ Ensure that all braces are secured before using the platform.

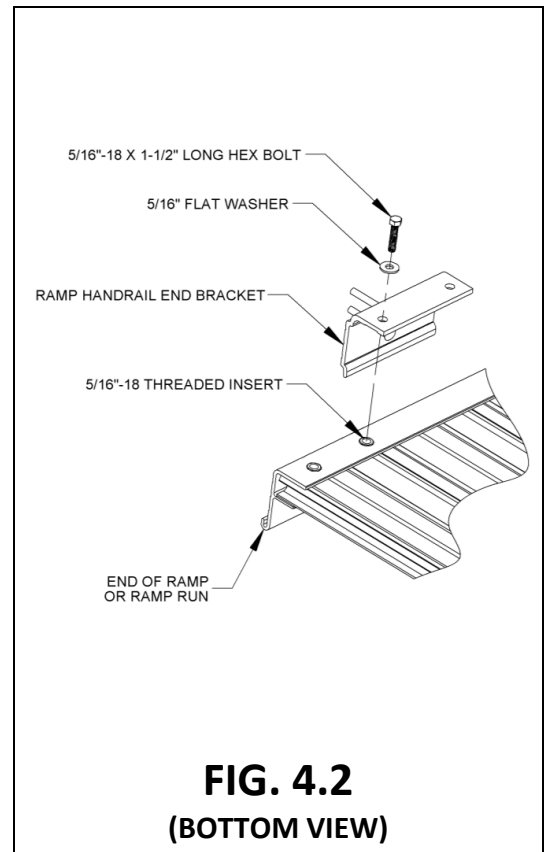
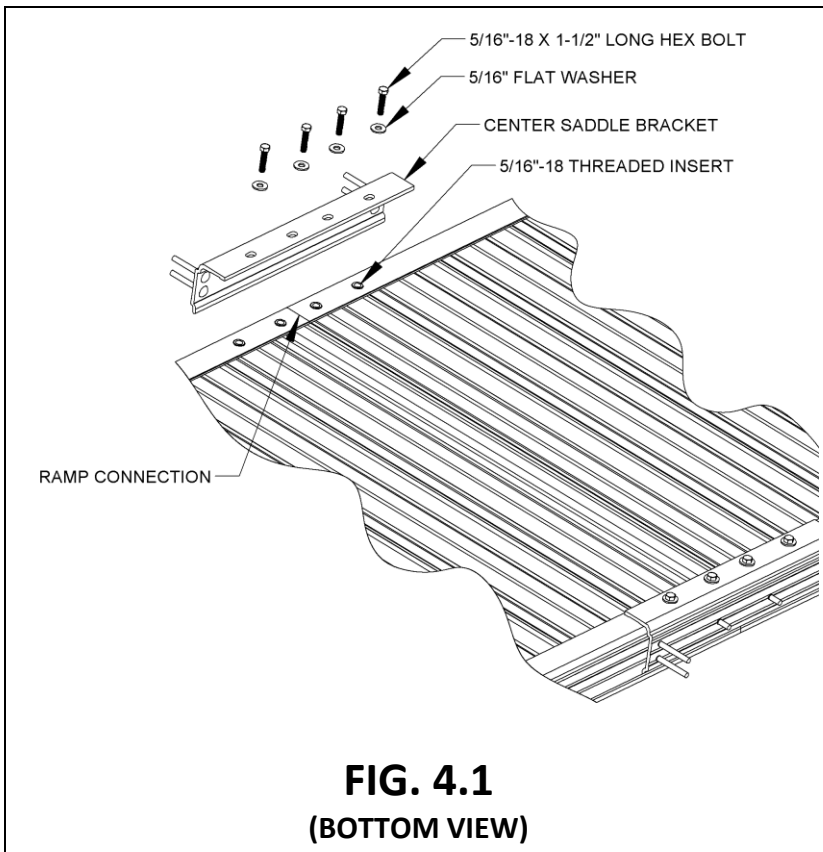
FIG. 3.4



4. RAMPS

4.1. CONNECT RAMP SECTIONS

- ✎ If your configuration does not include two consecutive ramps, skip to 'INSTALL RAMPS ON PLATFORMS'.
- ✎ The ramps included in the purchased kit can be arranged according to the user's preferences to suit the desired layout.
- 4.1.1. Place the walking surface side of the ramp sections face down, onto cardboard or lawn so that the ramp is not damaged (scratched or dented).
- 4.1.2. Butt the sections together end-to-end and ensure there is no gap, then position the two Center Saddle Brackets, included in the Universal Ramp to Ramp Connector, over the threaded inserts at the end of each ramp section (FIG. 4.1).
- 4.1.3. One edge of the Center Saddle Bracket will slide into the groove of the ramp sections.
 - ✎ To create a run, ramp sections are connected using two interchangeable Center Saddle Brackets per joint. The Center Saddle Brackets are also where the handrails and ramp legs are attached.
- 4.1.4. Attach the Center Saddle Brackets using four each 5/16"-18 x 1-1/2" bolts and 5/16" washers per bracket. Tighten all eight bolts (four each per Center Saddle Bracket).
 - ✎ Although a system can have multiple ramps per run, it is recommended that a maximum of three ramp sections at a time be joined in this manner.
- 4.1.5. Locate the Ramp Handrail End Bracket Pairs. Install four end brackets (will be used to attach handrails in a later step). Use one end bracket at each outside corner of the ramp or ramp run using one 5/16"-18 x 1-1/2" bolt and washer into the threaded insert farthest from the end of the ramp (FIG. 4.2).
- 4.1.6. Turn the joined ramps to their upright position, being careful not to damage the threaded studs.

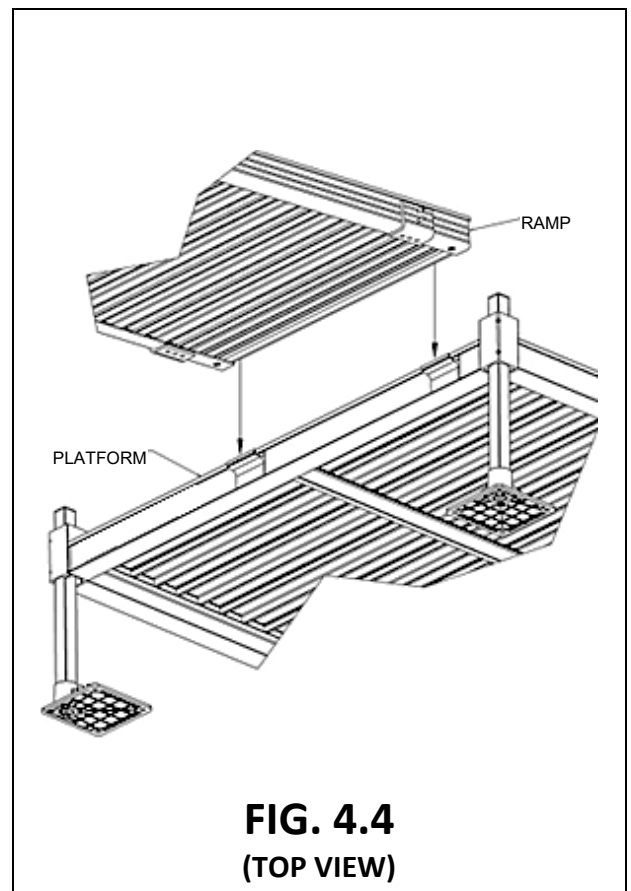
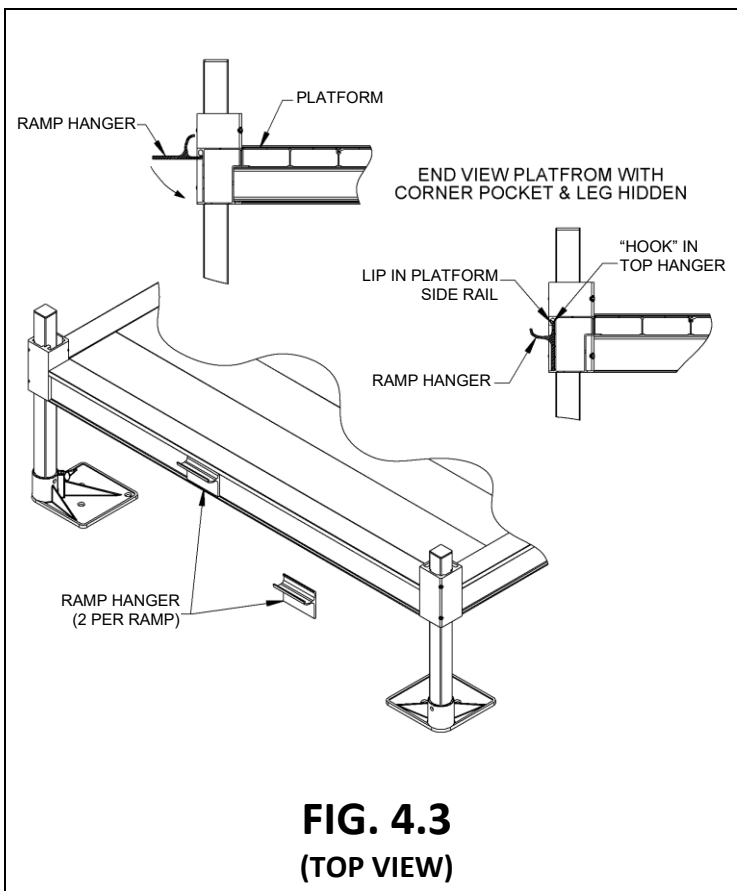


4.2. INSTALL RAMPS ON PLATFORMS

- ✋ If your configuration does not include a platform, skip to 'ATTACH SUPPORT LEG BRACKETS AND LEGS TO RAMPS'.
- ✋ This section addresses the attachment of a ramp or ramp run to a platform. If the ramp needs to be angled with respect to the platform or is going to be attached to an existing porch, skip to 'ANGLE RAMPS WITH RESPECT TO PLATFORMS, PORCHES, OR DECKS'.

- 4.2.1. Ramps are typically located toward either the left or right side of the platform or centered but can be placed in any location on a platform side. When the ramp is located toward the side of a platform, the ramp handrail post should be positioned 1-1/2" (minimum) to 2" from the inside of the platform post. When using other locations, a second Ramp to Platform Closure must be used to connect the ramp and platform handrails.
- 4.2.2. Locate the Ramp Hanger Pair ("hanger") and install the two hangers in the platform side rail where the ramp will be attached.
- 4.2.3. Hold the hanger perpendicular (approximately) to the platform side rail then bring the hanger upward until it is against the side rail lip. Rotate the hanger and continue pushing upward in such a manner that the "hook" at the top of the hanger goes behind and catches on the lip in the top of the platform side rail and the hanger sits on the ledge at the bottom (FIG. 4.3).
- 4.2.4. Set the ramp on the hangers. The hangers should be positioned as close as possible to the ramp side rails (FIG. 4.4). The procedure is the same at both the top and bottom of ramp runs which end at a platform unless a transition plate is used.

⚠ Do not attempt to walk on the system until assembly is complete.



4.3. ATTACH SUPPORT LEG BRACKETS AND LEGS TO RAMPS

- 4.3.1. Install the Support Leg Bracket ("bracket"), included with the Universal Ramp to Ramp Connector, on the center studs of the Center Saddle Bracket (ramp connector included with Universal Ramp to Ramp Connector) with the round hole on the upper stud and the curved slot over the lower stud (FIG. 4.5).
- 4.3.2. Attach the bracket using the provided 5/16" flat washers and 5/16"-18 nylon insert locknuts onto the studs but do not tighten fully until the bracket has been leveled.

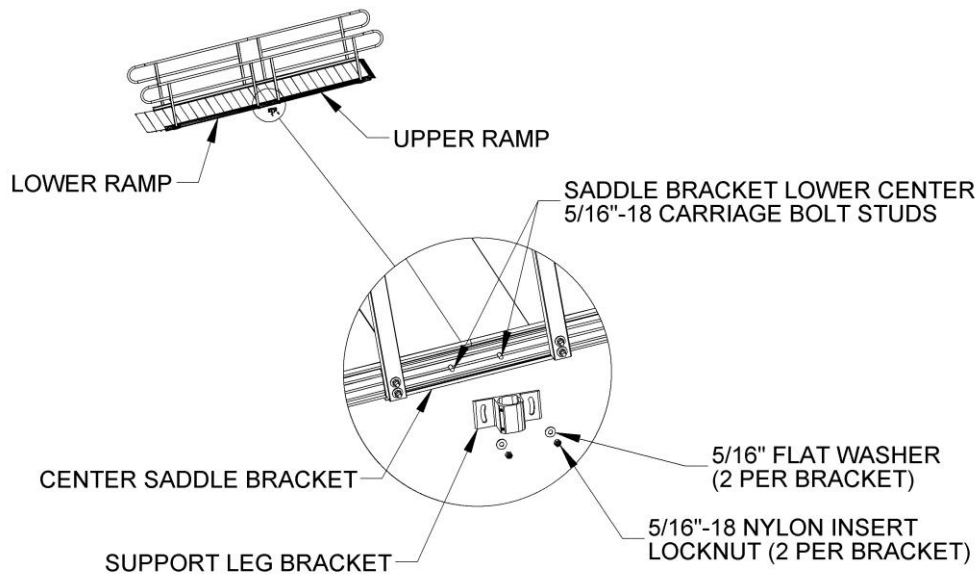


FIG. 4.5

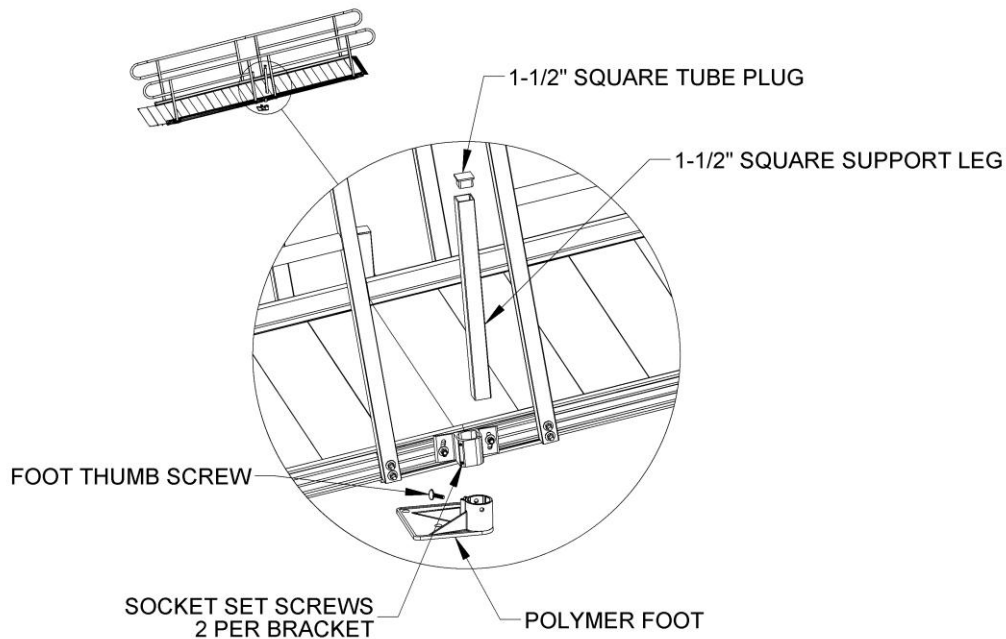
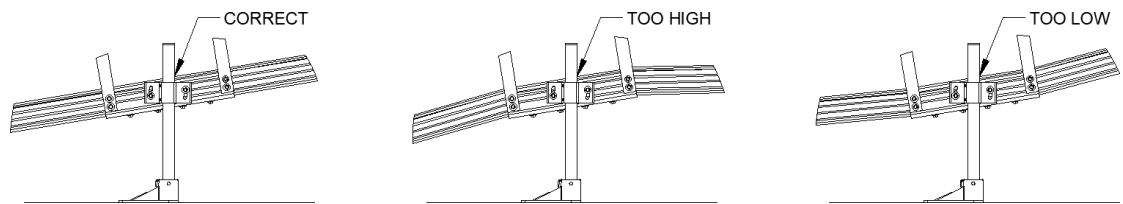


FIG. 4.6

- 4.3.3. Adjust the bracket so the polymer foot is perpendicular to the resting surface, then torque the 5/16"-18 nylon insert locknuts to 20 ft.-lbs.
- 4.3.4. Locate the appropriate Support Leg Pair where "xx" denotes the leg length) for the location. Place a foot under the bracket with the foot extending under the ramp, then insert a 1-1/2" square Support Leg ("leg") through the bracket into the foot. Loosen the socket set screws and the foot thumb screw if needed to fully engage the leg in the foot (FIG. 4.6).
- ✎ If installing on soft soil it may be necessary to set the foot on a concrete pad.
- 4.3.5. After the leg is fully engaged in the foot, torque the 3/8"-16 headless socket set screws to 15 ft.-lbs. (FIG. 4.6).
- ⚠ Do not attempt to walk on the ramps until all leg set screws have been tightened as specified.
- 4.3.6. Tighten the foot thumb screw and insert a 1-1/2" square plug into the top of the leg (FIG. 4.6).
- 4.3.7. Repeat the above procedure at all locations where ramps connect.
- 4.3.8. Adjust the ramp legs one at a time.
- 4.3.9. Raise the ramp sections (at the Center Saddle Bracket) to take any sag out of the ramp run, then tighten the two locknuts in each leg.
- ⚠ ADA guidelines call for a maximum slope of 1:12 (approximately 5 degrees), and this is the ideal slope for the system. However, the ramps can be installed from 1:14 to 1:6 (approximately 4 to 10 degrees). Do not attempt to install the ramps outside of this range.
 - ✎ Adjusting sections can be accomplished by having someone sight down the ramp while another person adjusts the ramp height.
 - ✎ Ensure that the ramp sections are parallel to each other. If they are not, it may be difficult to install the handrails (FIG. 4.7).
- 4.3.10. Ensure that all bolts are tight and that the ramp sections are aligned parallel to one another.

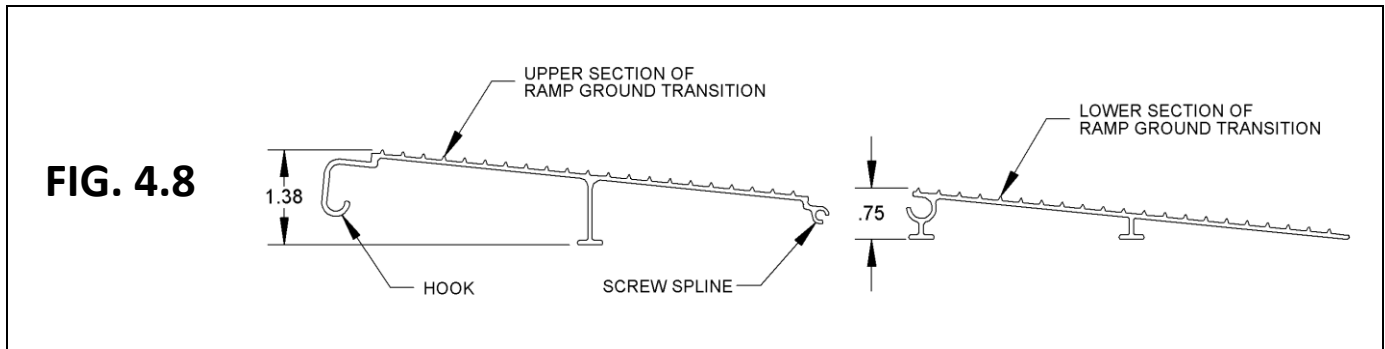
FIG. 4.7



4.4. INSTALL RAMP GROUND TRANSITION

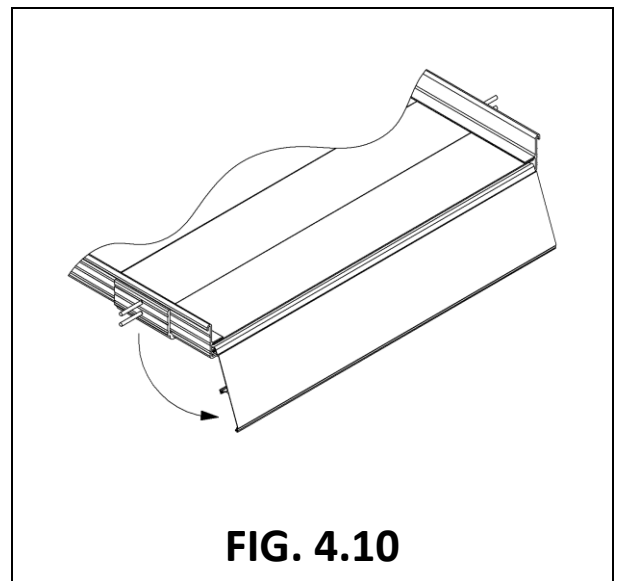
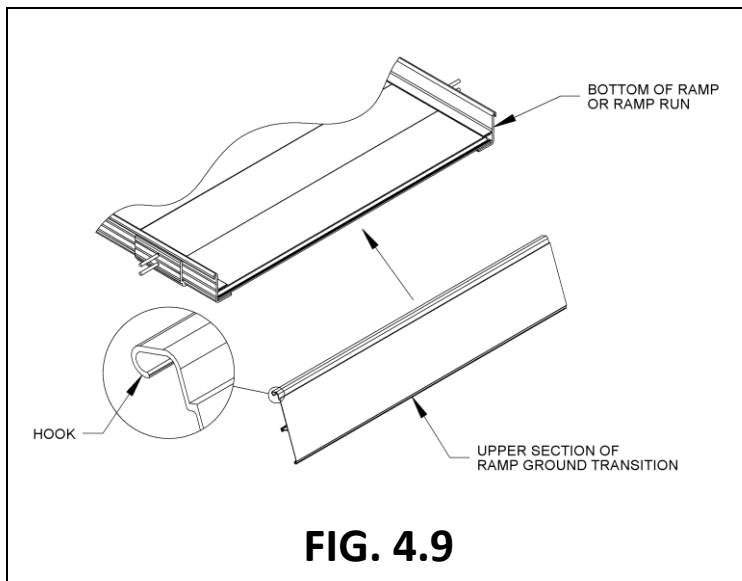
4.4.1. The Ramp Ground Transition consists of two sections that need to be installed into the ramp and then connected (FIG. 4.8).

⚠ The Ramp Ground Transition is only designed to transition from the lowest ramp in the run to the ground. Do not use it in any other location.



4.4.2. Lift the lowest end of the ramp/ramp run and bring the upper section of the Ramp Ground Transition into the ramp end tread until the “hook” is engaged (FIG. 4.9).

4.4.3. Rotate into place (FIG. 4.10) and set back on the ground.



4.4.4. Slide the bottom section of the Ramp Ground Transition onto the upper section (FIG. 4.11).

4.4.5. Install #8-32 x 1/2" hex washer head thread cutting screws into the screw slots on both sides where the sections connect (FIG. 4.12).

⚠ Do not overtighten the thread-cutting screws as thread stripping can result.

✋ The hex washer head screws will keep the sections from sliding with respect to each other, but the sections can still be separated until they are installed in the ramp and resting on the ground.

4.4.6. Holes and fasteners are included for anchoring into wood or concrete. Other methods may be used when anchoring into other surfaces.

FIG. 4.11

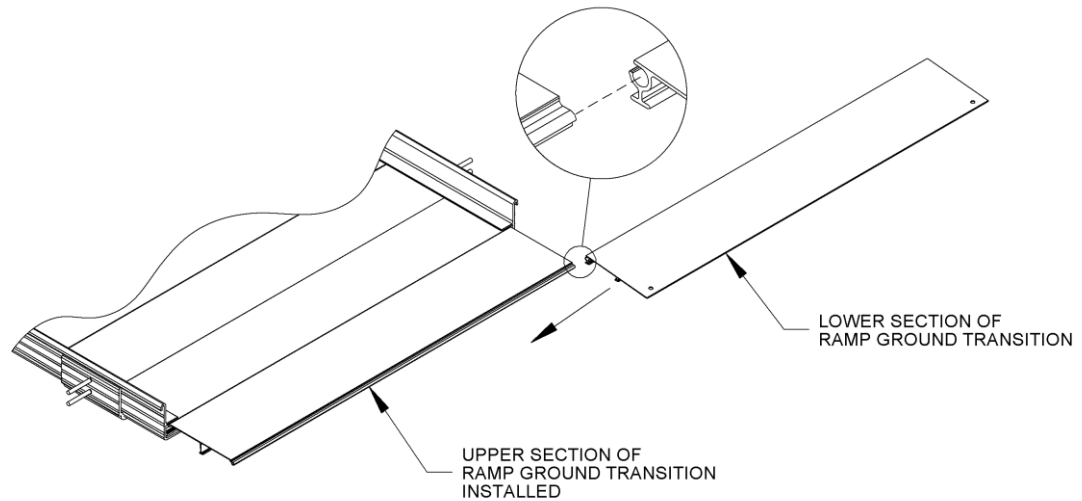
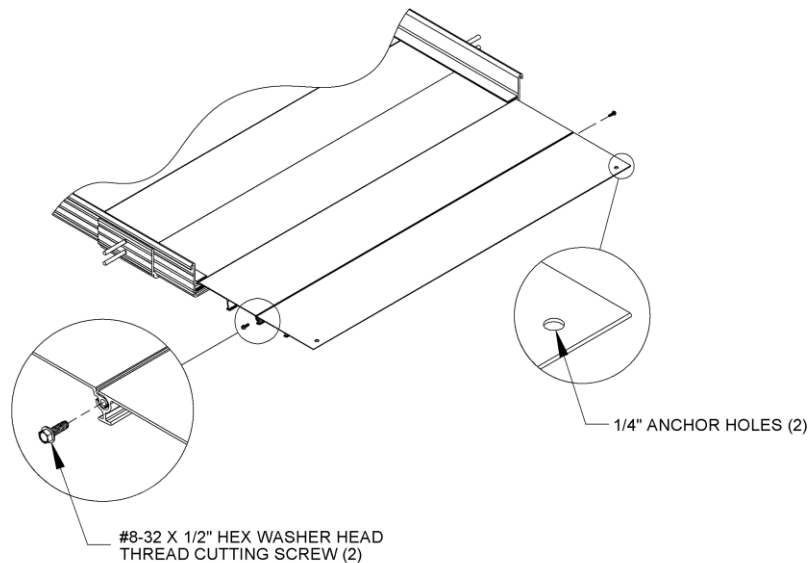


FIG. 4.12

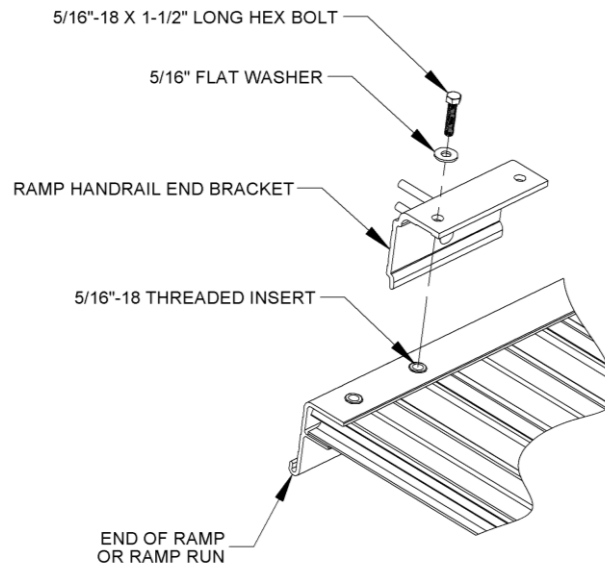


4.5. INSTALL A RAMP RUN TO AN EXISTING STRUCTURE

This section (as well as sections 4.6 and 4.7) addresses configurations that do not include a top platform (the ramp run will be connected to an existing landing, such as a porch, deck, stairs, etc.).

- 4.5.1. Turn the ramp section upside down on a flat surface. Do this on cardboard or a lawn so that the ramp is not damaged (scratched or dented).
- 4.5.2. Locate the Ramp Handrail End Bracket Pairs. Install four end brackets (will be used to attach handrails in a later step). Install one end bracket at each outside corner of the ramp section using one 5/16"-18 x 1-1/2" bolt and washer into the threaded insert farthest from the end of the ramp (FIG. 4.13).
- 4.5.3. Turn the ramp over to the upright position.

FIG. 4.13
(BOTTOM VIEW)



- 4.5.4. Place the upper end of the ramp onto the supporting surface (i.e., platform, porch, etc.). Once the ramp is resting on the porch or platform, lift the upper end of the ramp and install the Ramp Upper Transition into what will be the upper end of the ramp (FIG. 4.14).
- 4.5.5. Maneuver the ramp to its desired position (FIG. 4.15).

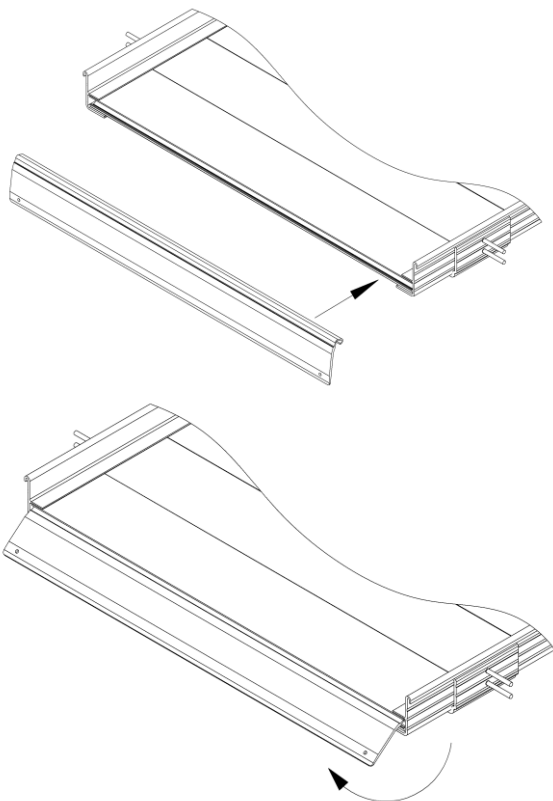


FIG. 4.14

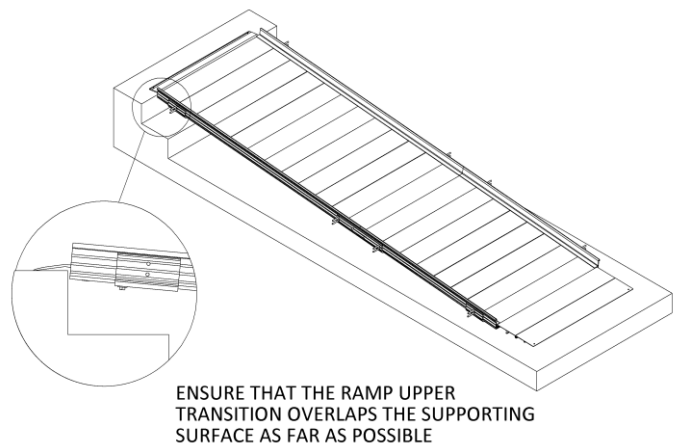


FIG. 4.15

4.6. ANCHOR RAMP UPPER TRANSITION

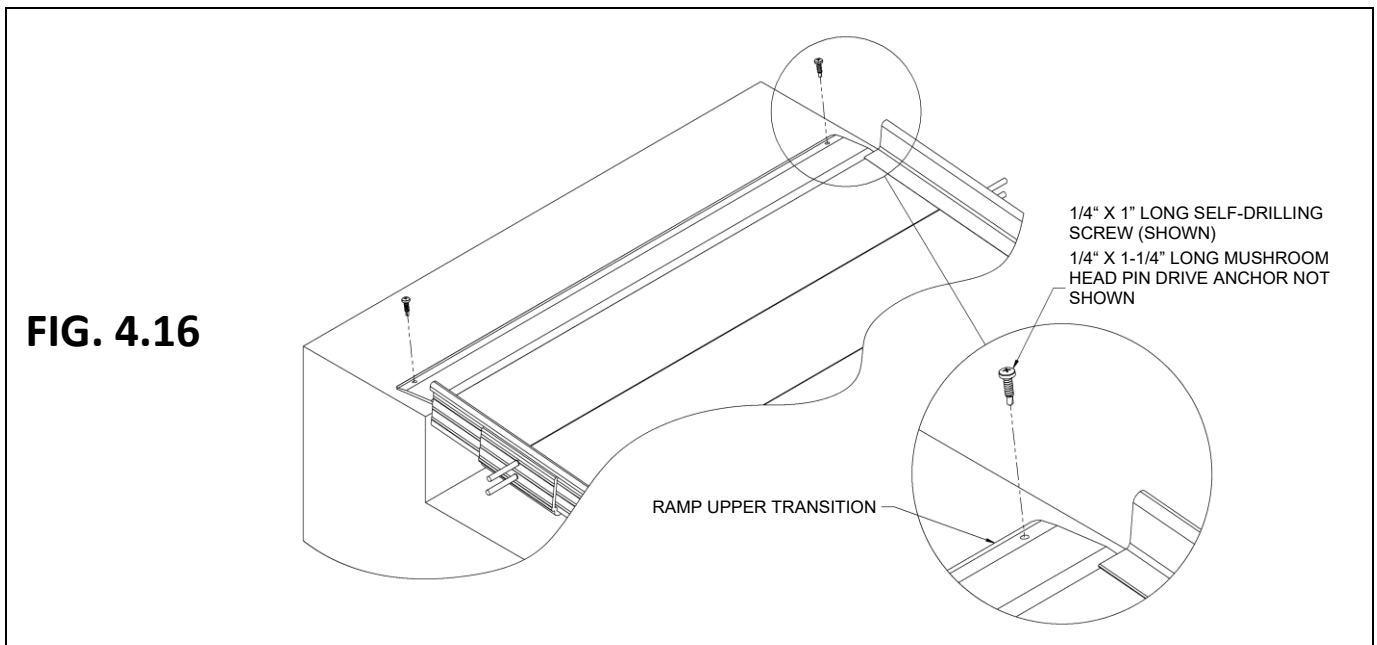
The Ramp Upper Transition must be anchored to a substantial surface. Use the pre-drilled holes at each corner of the Ramp Upper Transition as guides.

4.6.1. IF RESTING ON A WOOD SURFACE:

- 4.6.1.1. Secure Ramp Upper Transition by installing the 1/4" x 1" long self-drilling screw through each hole (FIG. 4.16).

4.6.2. IF RESTING ON A CONCRETE SURFACE:

- 4.6.2.1. Using the Ramp Upper Transition as a template, transfer the hole locations to the concrete surface and note locations with a marking device.
- 4.6.2.2. Remove Ramp Upper Transition. Using a 1/4" masonry bit, drill two 1-1/2" deep holes at the marked locations.
 - ✎ After drilling, make sure that the holes are free of any residue and or debris.
- 4.6.2.3. Re-attach the Ramp Upper Transition and align over the drilled holes.
- 4.6.2.4. Drive the 1/4" diameter mushroom head pin drive anchors into the holes in the Ramp Upper Transition with a hammer until the head is seated flush with the anchor body.



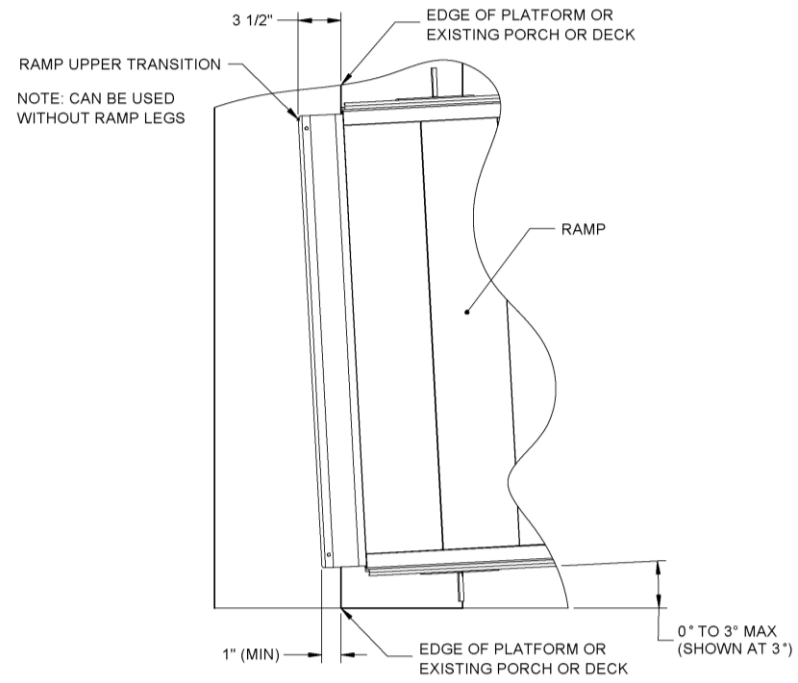
4.7. ANGLE RAMPS WITH RESPECT TO PLATFORMS, PORCHES, OR DECKS

There are situations where it is necessary to angle ramps with respect to a platform, porch, or deck. If a ramp must be angled when attaching to a platform, a Ramp Upper Transition, which is included in all configurations that do not have a top platform, must be used instead of a Ramp Hanger Pair. The same components can be used at the top and bottom of the ramp or ramp run.

- 4.7.1. Angles up to approximately 3 degrees can be accommodated using the Ramp Upper Transition if it overlaps the surface of the platform, porch, or deck by at least 1" (FIG. 4.17).
- 4.7.2. The Ramp Upper Transition must be anchored to the landing. Use the provided 1/4" x 1" long self-drilling screws if anchoring to an aluminum platform.
- 4.7.3. Refer to SECTION 4.7 for anchoring to other surfaces.

- ⚠ It is the owner and or installer's responsibility to use the appropriate anchor for the Ramp Upper Transition. If the Ramp Upper Transition is being attached to a surface other than an aluminum platform provided as part of the system, the appropriate anchors may need to be purchased/used.

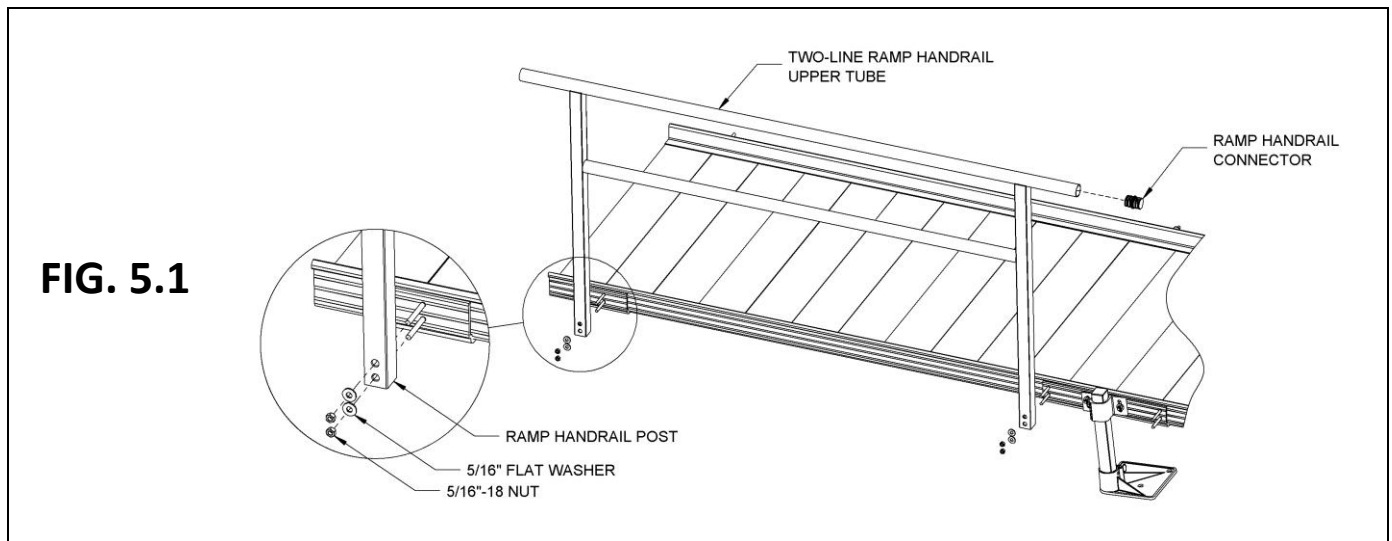
FIG. 4.17



5. HANDRAILS

5.1. INSTALL RAMP HANDRAILS

- 5.1.1. Two-line handrails are included in all kits. One handrail is required on each side of the ramp, but handrails are interchangeable side to side. It is strongly recommended the bolts be assembled loosely and not fully tightened until all have been installed and the handrail has been installed on the ramp.
- 5.1.2. In configurations with more than one ramp in a run, handrail connectors (Universal Ramp to Ramp Connector) are used to join handrails together. Refer to FIGs. 5.1 and 5.2 for the following:
 - 5.1.2.1. The vertical posts of the handrails each have two holes that correspond with the studs on the end or Center Saddle Brackets (installed in steps).
 - 5.1.2.2. Attach handrails to the studs using two 5/16" flat washers and two 5/16"-18 nuts per post. Tighten 5/16"-18 nuts just enough to hold the handrail in place.
 - 5.1.2.3. If the studs do not align with the posts in the handrail, the handrail end bracket is most likely installed into the wrong threaded insert in the ramp side rail (see FIGs. 4.2 or 4.14 for proper installation location). Slide the ramp handrail connector into one end of the upper handrail tube.
 - ✎ If the connector does not fit in the tube, use pliers to lightly compress the connector while sliding it into the handrail tube.



- 5.1.2.4. Slide the next handrail section over the connector, ensuring the upper handrail tubes are pushed firmly towards each other. Compress the connector. Use a rubber mallet or similar tool to fully seat as needed.
- 5.1.2.5. Rotate the handrail until the holes in the handrail post align with the studs in the saddle brackets that are connected to the ramp. Attach with 5/16" flat washers and 5/16"-18 nuts but tighten only enough to hold the handrail in place.
- 5.1.2.6. Repeat for the remaining handrails in the run, then tighten all fasteners securely.

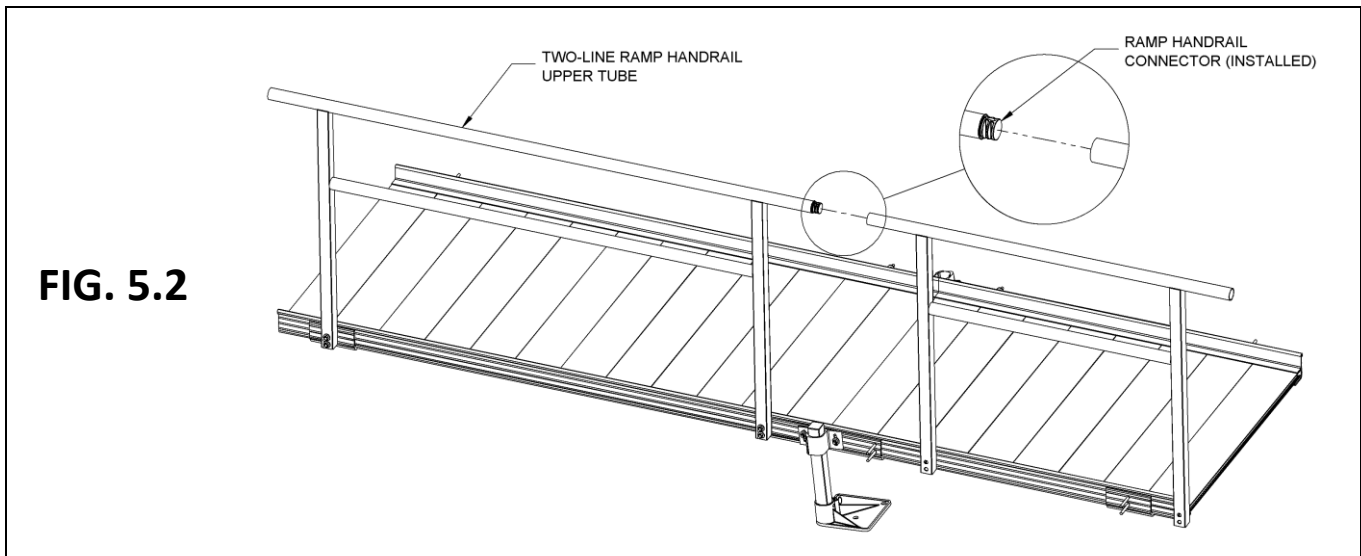


FIG. 5.2

5.2. INSTALL PLATFORM HANDRAILS

✎ If your configuration does not include a platform, skip to 'INSTALL RAMP HANDRAIL END CAPS'.

- 5.2.1. Two-line handrails can be configured for left, right, or straight entry. It is strongly recommended the bolts be assembled loosely and not fully tightened until all have been installed and the handrail has been installed on the platform.
- 5.2.2. **INSTALL PLATFORM HANDRAILS ON A STRAIGHT CONFIGURATION**
 - 5.2.2.1. Using the holes shown (FIG. 5.3), pre-assemble the platform handrail for both sides by inserting a 5/16"-18 x 1" hex bolt through a 5/16" flat washer, the angle post, and into a 5/16"-18 round threaded insert in the handrails and curb. Make sure the unattached legs of the angle posts are on the same side with respect to handrail tubes and curb and pointing outward (FIG. 5.4).
 - 5.2.2.2. Drop platform handrails into the corner pockets (FIG. 5.4). The curb should rest on top of the corner pocket.
- 5.2.3. **INSTALL PLATFORM HANDRAILS ON A TURN CONFIGURATION**
 - 5.2.3.1. Using the holes shown (FIG. 5.3), pre-assemble the platform handrail for the "first" handrail by inserting a 5/16"-18 x 1" hex bolt through a 5/16" flat washer, the angle post, and into a 5/16"-18 round threaded insert in the handrails and curb. Make sure the unattached legs of the angle posts are on the same side with respect to handrail tubes and curb and pointing outward (FIG. 5.5).
 - 5.2.3.2. For the "second" handrail, only assemble one angle post as described above, paying attention to how it will connect to the "first" handrail so the angle post will be oriented correctly.
 - 5.2.3.3. Drop the "first" handrail into the corner pockets (FIG. 5.5). The curb should rest on top of the corner pocket.
 - 5.2.3.4. For the "second" handrail, insert the angle post into a corner pocket at 90 degrees from the "first" handrail, then install a 5/16"-18 x 1" long hex bolt through a 5/16" flat washer, the angle post in the "first" handrail, and into a 5/16"-18 threaded inserts in the "second" handrail and curb (FIG. 5.5). Tighten all fasteners securely.
- 5.2.4. Tighten two set screws on the inside of each platform corner pocket. One set screw is located above the platform deck and the other is underneath (FIG. 5.4).
- 5.2.5. Install an angle cap on top of each handrail post. Use construction adhesive to bond the cap in place (FIG. 5.3).
- 5.2.6. Ensure all fasteners are tightened securely.

FIG. 5.3

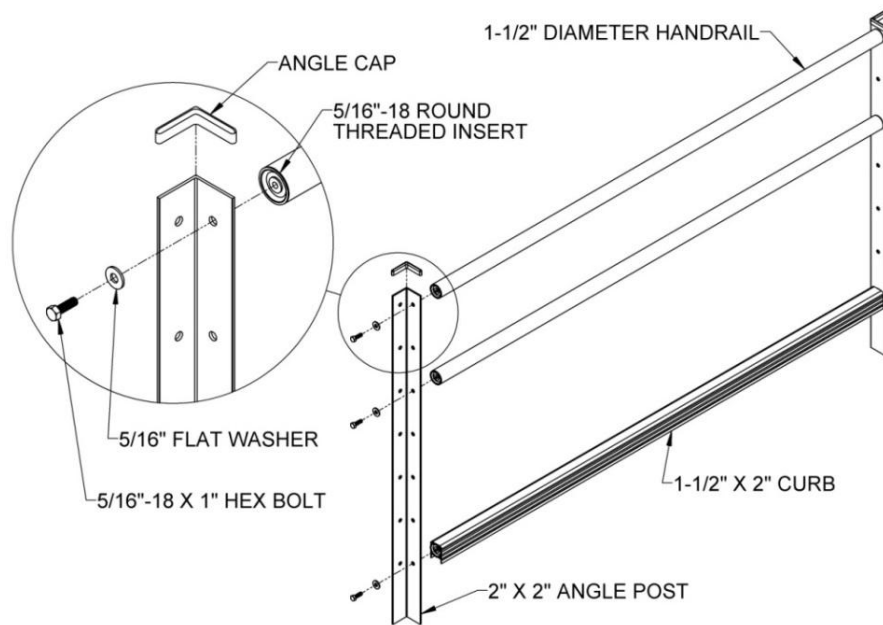


FIG. 5.4

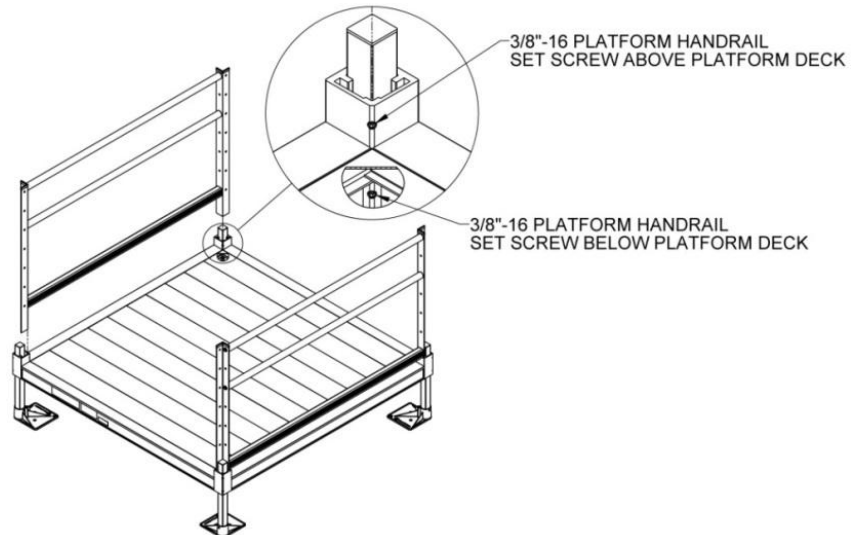
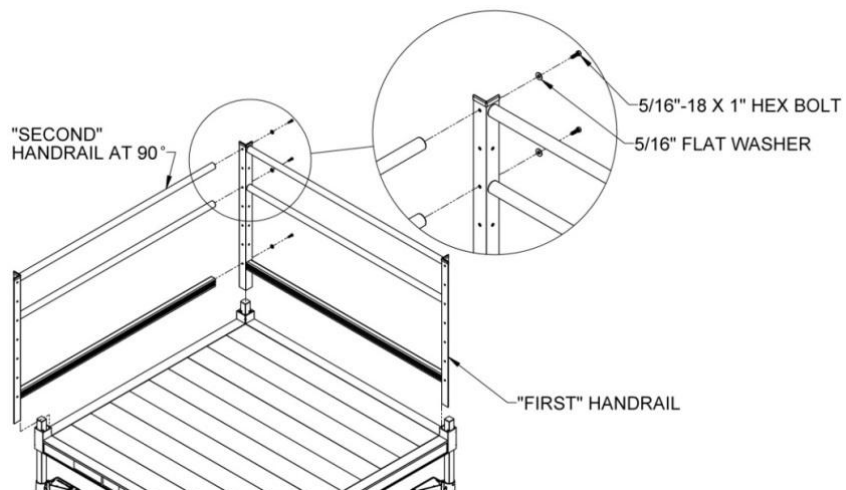


FIG. 5.5



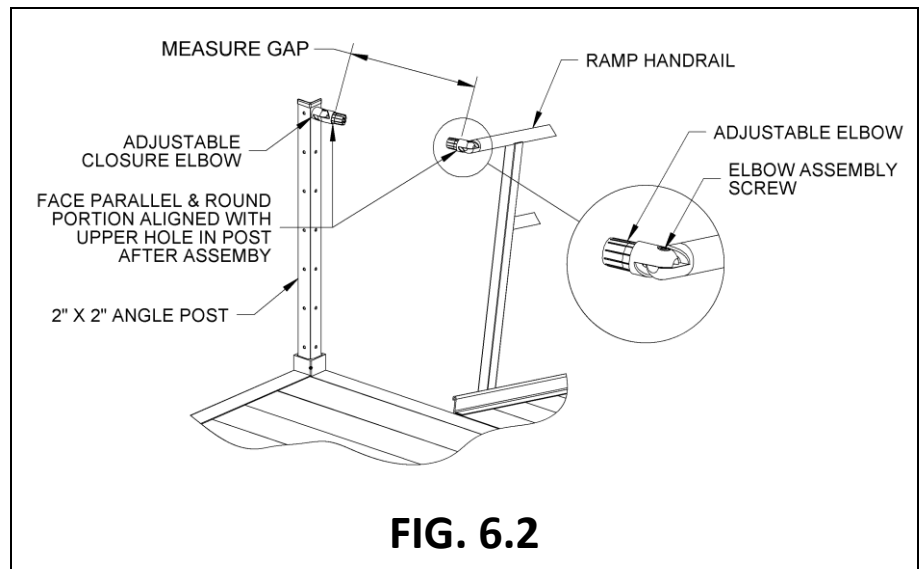
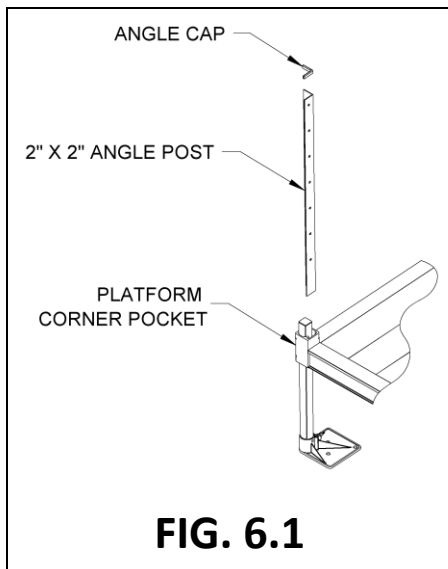
6. CLOSURES

6.1. CLOSURE – UPPER RAIL

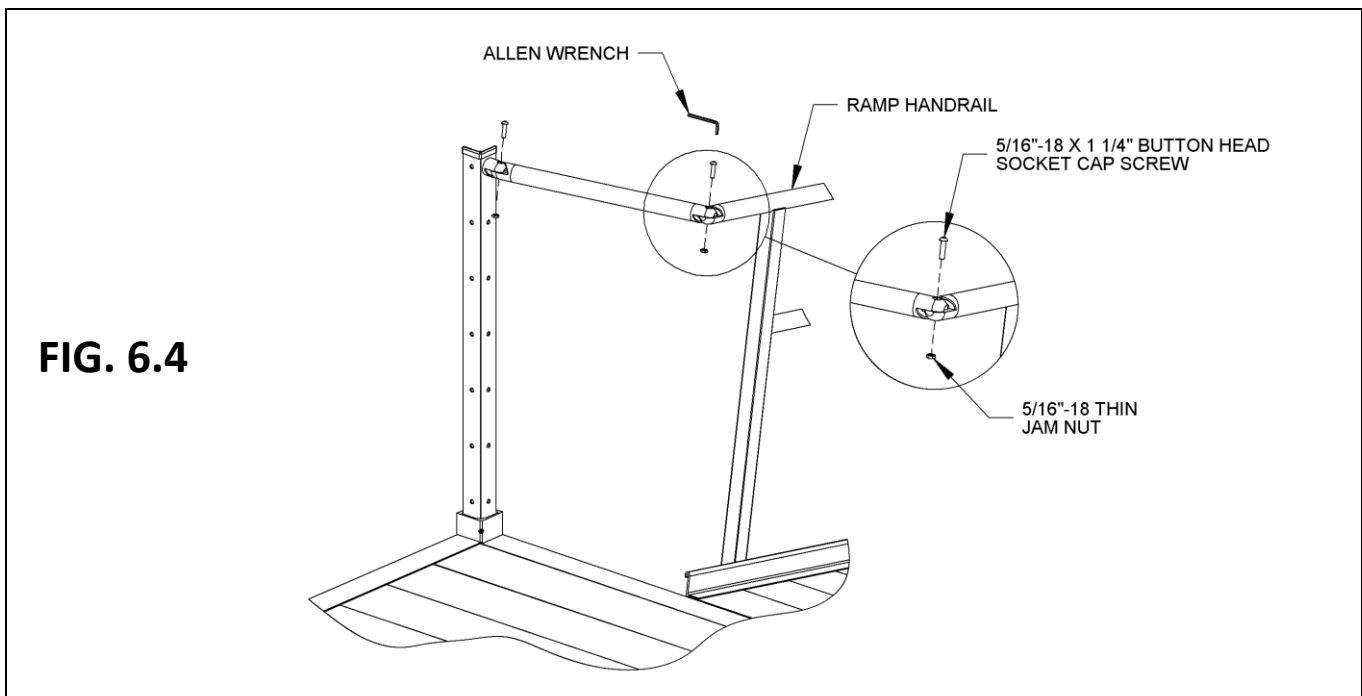
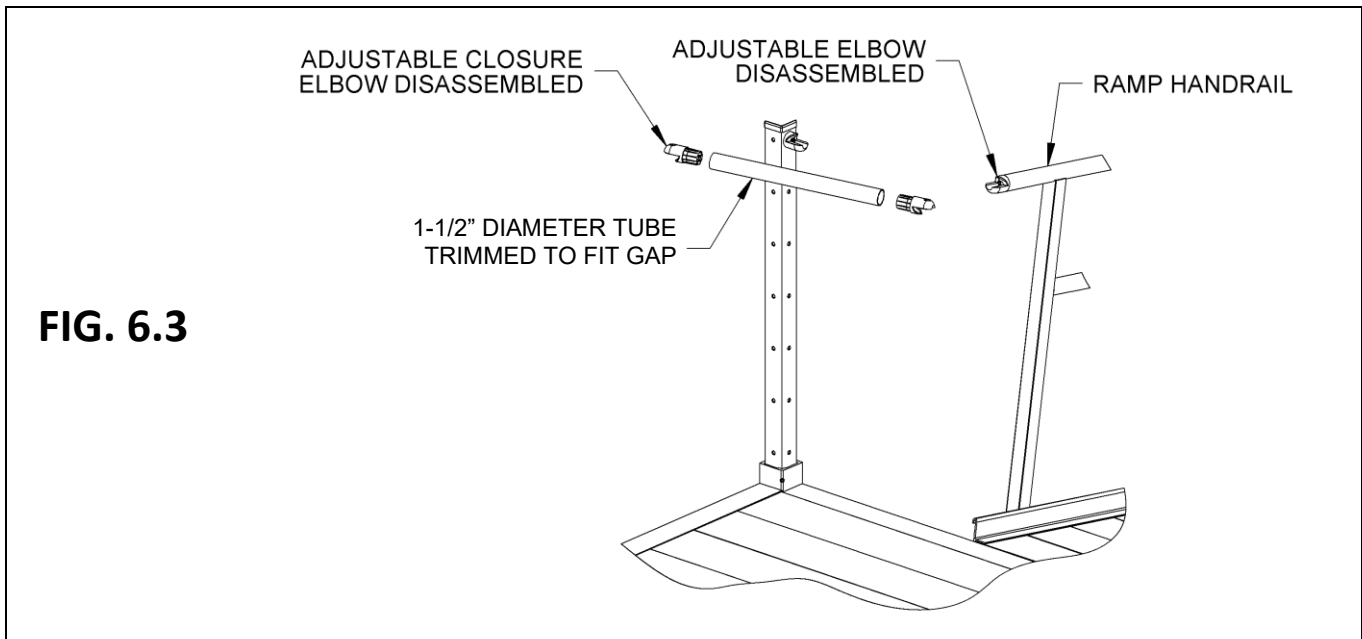
Closures fill the space between ramp handrails and platform posts. As a standard, the closure comes with components that allow the ramp to be positioned to the left side, right side, or the center of a platform. When positioning to the side, the ramp handrail post should be positioned 1-1/2" (minimum) to 2" from the inside of the platform post. When positioning to the center of a turn platform, the handrail tube must be cut in half to create a second Ramp to Platform Closure must be used to connect the ramp and platform handrails. The installation of the upper rail is the same regardless of the closure's position.

6.2. INSTALL CLOSURE ON A TOP PLATFORM OR A 5' X 5' TURN PLATFORM

- ✎ If installing a closure on a top platform in the "straight" configuration, the 2" x 2" angle post will already be in place. skip to step 6.2.3.
- 6.2.1. If installing a closure on a top platform or a 5' x 5' turn platform, install the 2" x 2" angle post not attached to a platform handrail in the open platform corner pocket (FIG. 6.1). Align the bottom of the post with the bottom of the corner pocket and tighten the set screws securely.
- 6.2.2. Install an angle cap on top of the handrail post (FIG. 6.1). Use construction adhesive to bond the cap in place.
- 6.2.3. Install the upper rail, the rail connecting the ramp handrail to the platform post.
 - 6.2.3.1. Insert the adjustable elbow in the ramp handrail and install the closure elbow into the angle post (FIG. 6.5). Loosen both elbow assembly screws and position the round portion of the adjustable elbows so they are aligned with each other (FIG. 6.2).
 - 6.2.3.2. Measure the gap between the faces of the elbows (FIG. 6.2).



- 6.2.3.3. Trim the 1-1/2" diameter round tube to the length measured (FIG. 6.3).
- 6.2.3.4. Using a metal file, smooth any sharp edges from the trimming.
- 6.2.3.5. Disassemble the adjustable elbows by removing the screw and nut.
- 6.2.3.6. Install an elbow half into each end of the trimmed tube which will attach to the ramp handrail and the angle post (FIG. 6.3).
- 6.2.3.7. Reassemble the elbow with the screw and nut (FIG. 6.4).



- 6.2.4. Install a 5/16"-18 x 3/4" button head hex drive screw through the upper hole in the angle post into the 5/16"-18 round threaded insert (FIG. 6.5), then tighten all fasteners securely.
- 6.2.5. Drill 3/32" or 1/8" pilot holes through the 1-1/2" diameter tubes adjacent to the elbows. The holes should be in line with the assembly fasteners and approximately 1/4" from the elbow (FIG. 6.6).
- 6.2.6. Drive #8-18 x 3/4" self-drilling, self-tapping pan head Phillips screws into the holes drilled in the previous step. Tighten securely but use caution not to overtighten and strip the threads (FIG. 6.6).
- 6.2.7. Ensure the elbows are properly attached and secured.

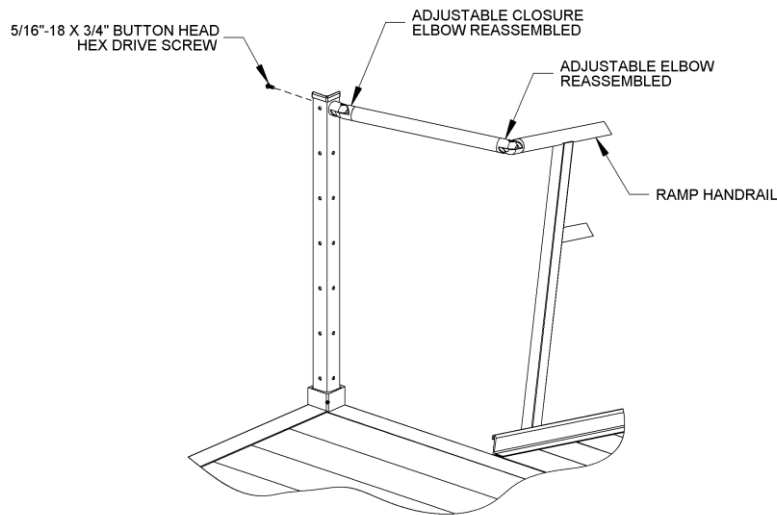


FIG. 6.5

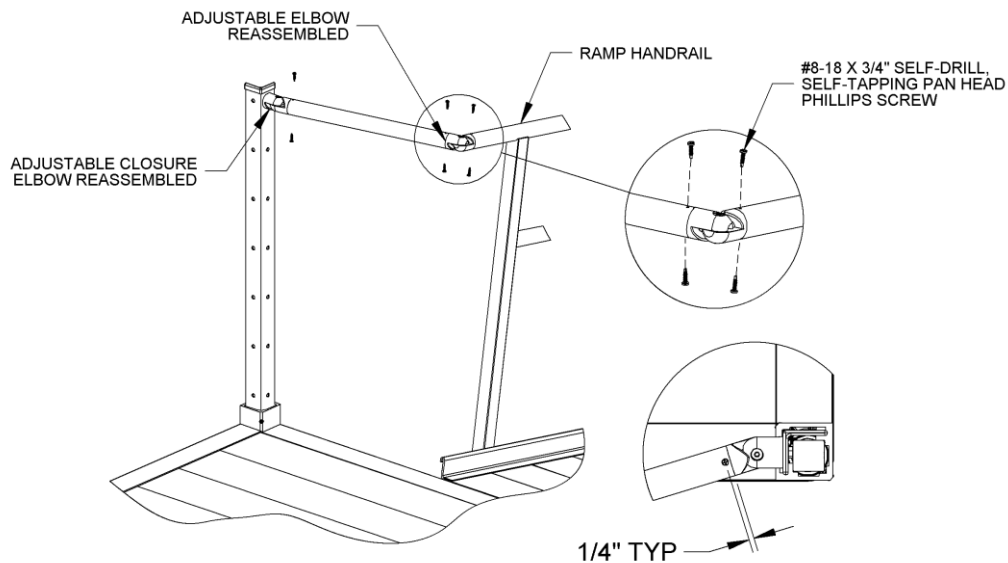
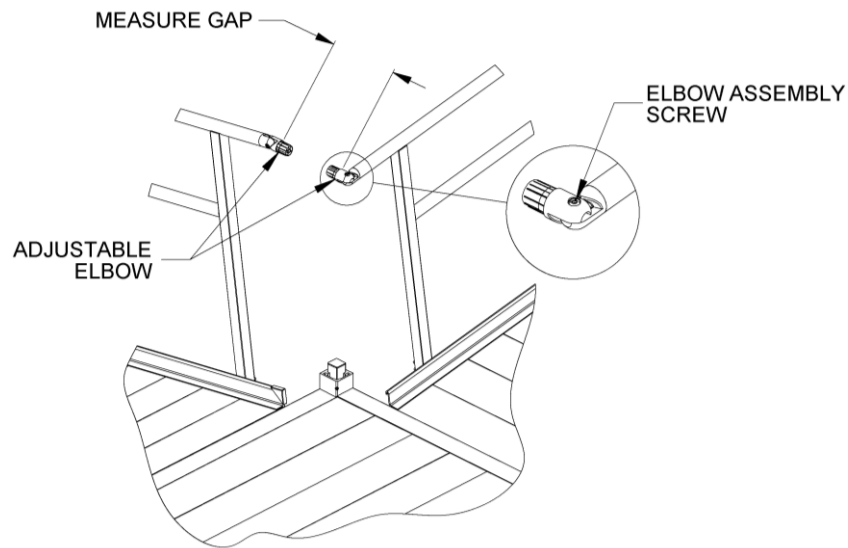


FIG. 6.6

6.3. INSTALL CLOSURE ON A 4' X 4' TURN PLATFORM

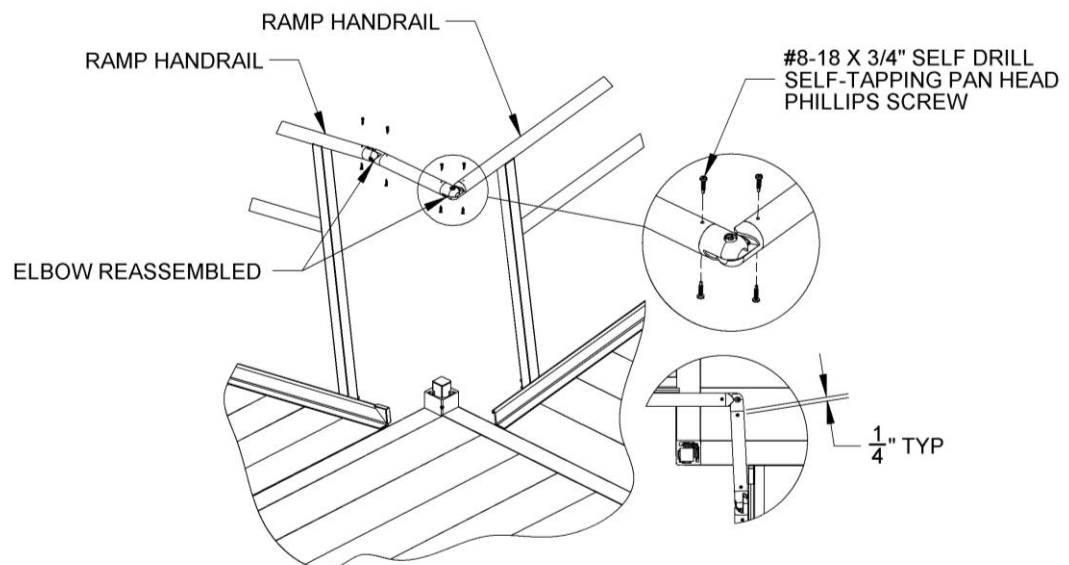
- 6.3.1. If installing a closure on a 4' x 4' turn platform, do not install the 2" x 2" angle post. In this setup, adjustable elbows and a handrail tube will be used to connect ramp handrails. A closure will only be needed at the corner of the platform with no angle post, as end caps or optional end loops can be used to terminate the handrails on the opposite side of the ramps.
- 6.3.2. Install the upper rail, the rail connecting the handrail on the lower ramp to the handrail on the upper ramp.
 - 6.3.2.1. Insert an adjustable elbow into the top handrail of both the lower ramp and upper ramp. Loosen both elbow assembly screws and position the round portion of the adjustable elbows so they are aligned with each other (FIG. 6.7).
 - 6.3.2.2. Measure the gap between the faces of the elbows (FIG. 6.7).

FIG. 6.7



- 6.3.2.3. Trim the 1-1/2" diameter round tube to the length measured.
- 6.3.2.4. Using a metal file, smooth any sharp edges from the trimming.
- 6.3.2.5. Disassemble the adjustable elbows by removing the screw and nut.
- 6.3.2.6. Install an elbow half into each end of the trimmed tube which will attach to the top handrail of the lower and upper ramp.
- 6.3.2.7. Reassemble the elbow with the screw and nut (refer to FIG. 6.4 for elbow assembly instructions).
- 6.3.3. Drill 3/32" or 1/8" pilot holes through the 1-1/2" diameter tubes adjacent to the elbows. The holes should be in line with the assembly fasteners and approximately 1/4" from the elbow (FIG. 6.8).
- 6.3.4. Drive #8-18 x 3/4" self-drilling, self-tapping pan head Phillips screws into the holes drilled in the previous step. Tighten securely but use caution not to overtighten and strip the threads (FIG. 6.8).
- 6.3.5. Ensure the elbows are properly attached and secured.

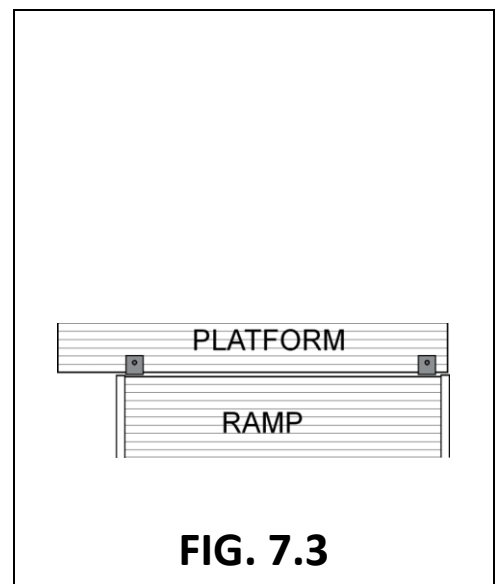
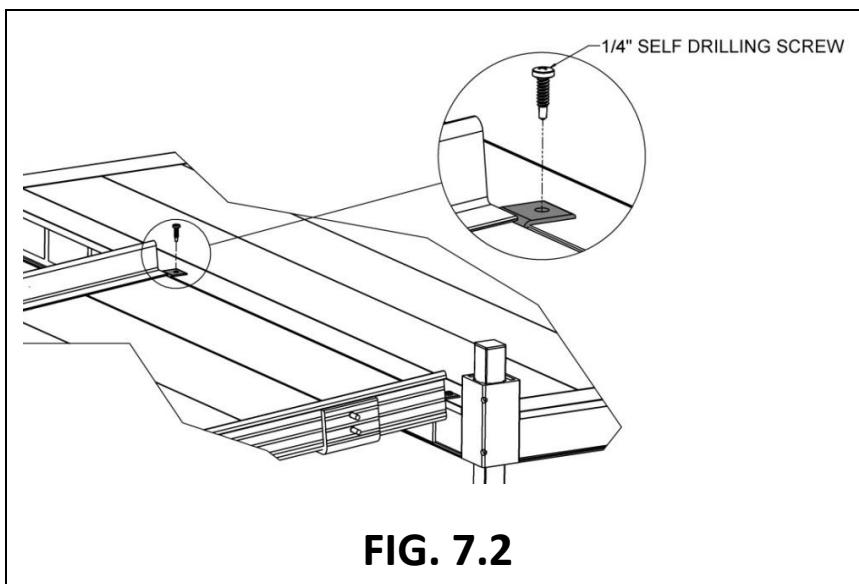
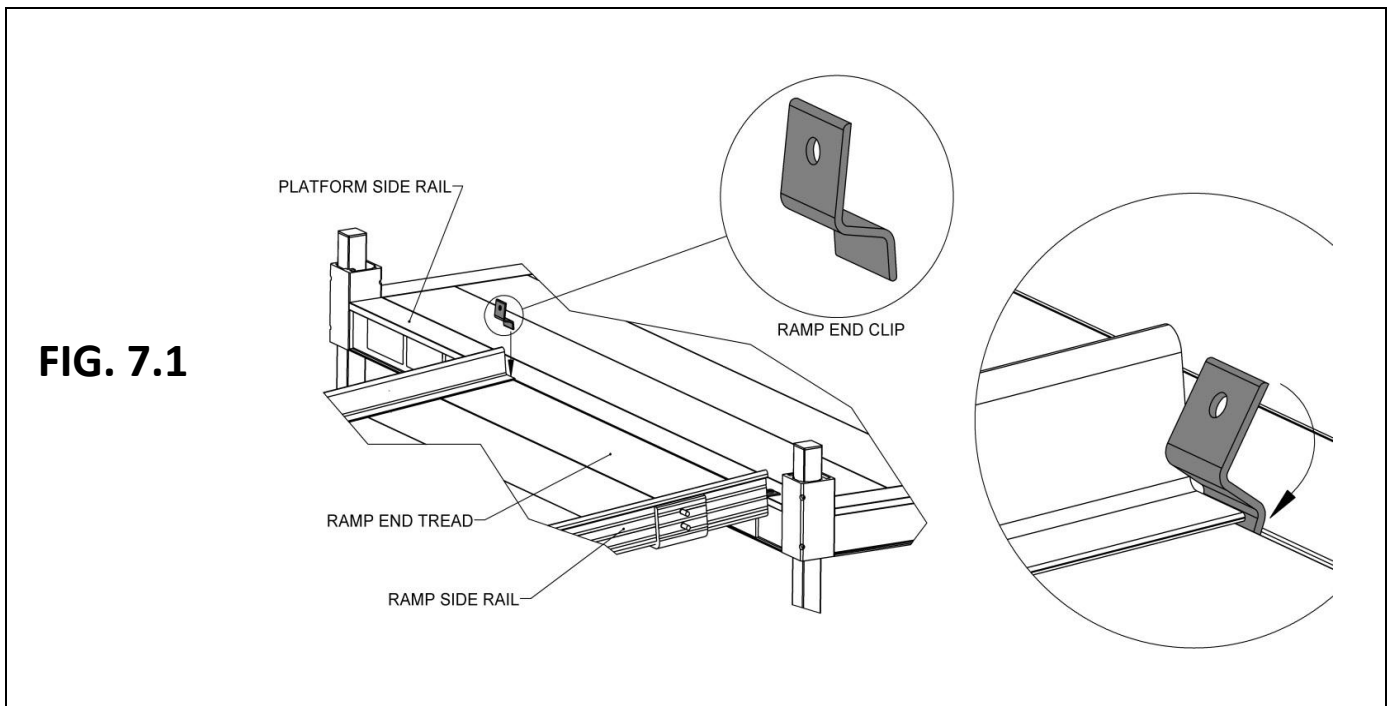
FIG. 6.8



7. FINAL PLATFORM/RAMP STEPS AND CHECKS

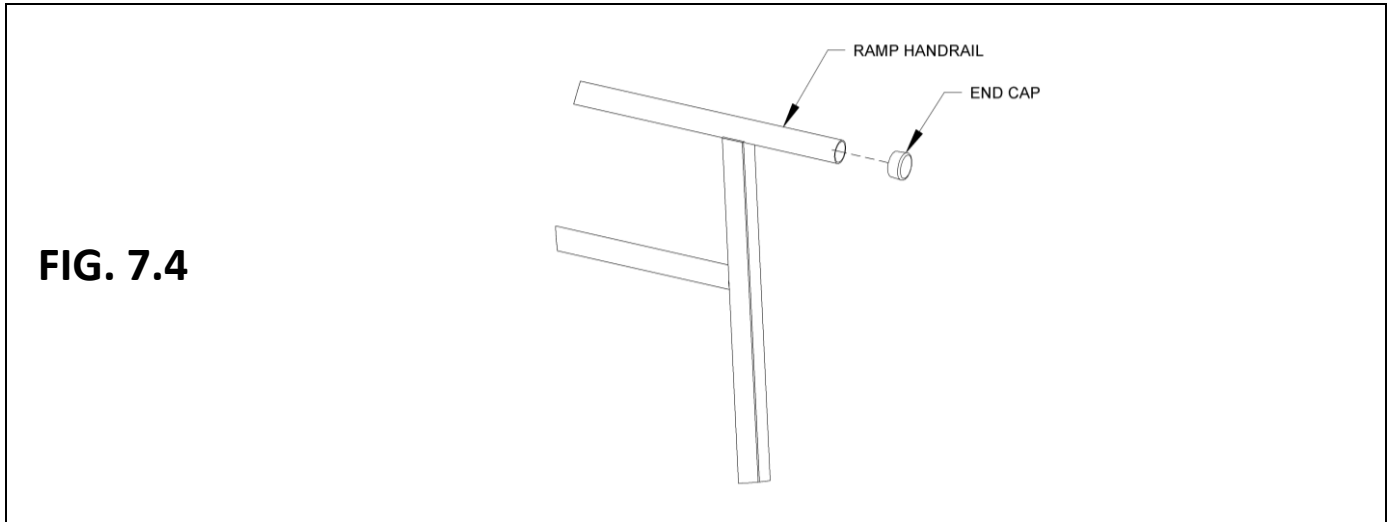
7.1. SECURE RAMPS TO PLATFORMS

- 7.1.1. Once the positioning of all ramps and platforms, and installation of all handrails, connectors, and end caps or loops are complete, you will need to secure ramps to platforms with Ramp End Clips ("clips"), included in the Ramp Hanger Pair.
- ⚠ Use two clips at all locations where ramps meet platforms.
- 7.1.2. Position each clip with the hole pointing up and oriented as shown (FIG. 7.1), then insert the short end of the clip into the small gap between the ramp and the platform in the area where the ramp side rail overlaps the ramp end tread (FIG. 7.1).
- 7.1.3. Before the clip contacts the ramp side rail, rotate the clip so the short end extends into the recess under the ramp end tread (FIG. 7.1).
- 7.1.4. Use the hole in the clip as a template to drill a 1/8" pilot hole in the platform side rail, then use the 1/4" x 1" long self-drilling screws to secure the clip to the platform side rail (FIG. 7.2).
- 7.1.5. Top view of the completed process (FIG. 7.3).



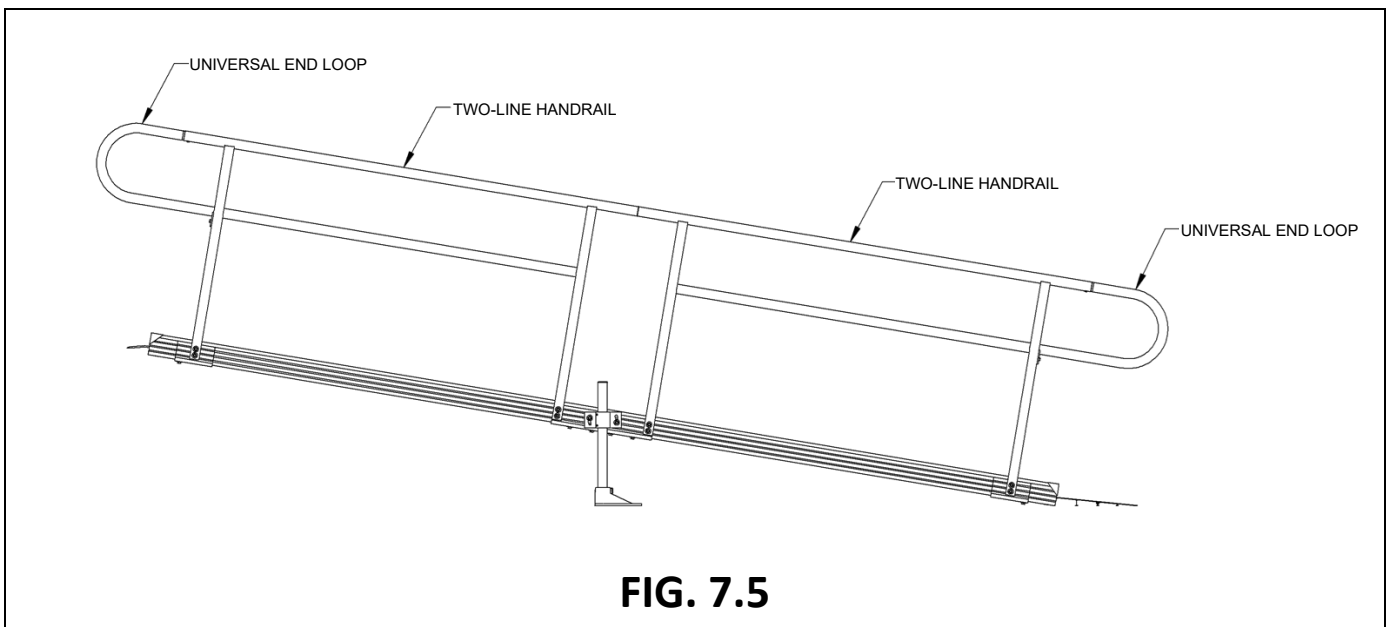
7.2. INSTALL RAMP HANDRAIL END CAPS

- 7.2.1. Use plastic end caps on all open ends of the handrails (FIG. 7.4). Use a rubber mallet or similar tool to fully seat as needed. If necessary, use construction adhesive to bond the cap to the ramp handrail.



7.3. INSTALL RAMP HANDRAIL END LOOPS (OPTIONAL ACCESSORY)

- 7.3.1. Handrail end loops are available as an optional accessory and can be used in place of handrail end caps (FIG. 7.5).
- 7.3.1.1. Install the O-ring over the swaged portion of the end loop until it rests against the loop shoulder (FIG. 7.6).
- 7.3.1.2. Install one 1/4" x 1" long self-drilling hex washer head screw through the hole in the end loop attachment plate, into the ramp handrail post, and tighten securely (FIG. 7.7).
- 7.3.2. Install one #10 x 1/2" pan head Phillips self-drilling screw into each handrail (FIG. 7.7).
- 7.3.2.1. To assist, use a punch to create a divot on the lower side of the ramp handrail tube approximately 1" from the end of the handrail.
- ✎ An alternate method is to pre-drill the hole with a 1/8" drill bit.
- 7.3.2.2. Using a screwdriver, hand tighten the screw until no threads remain exposed.



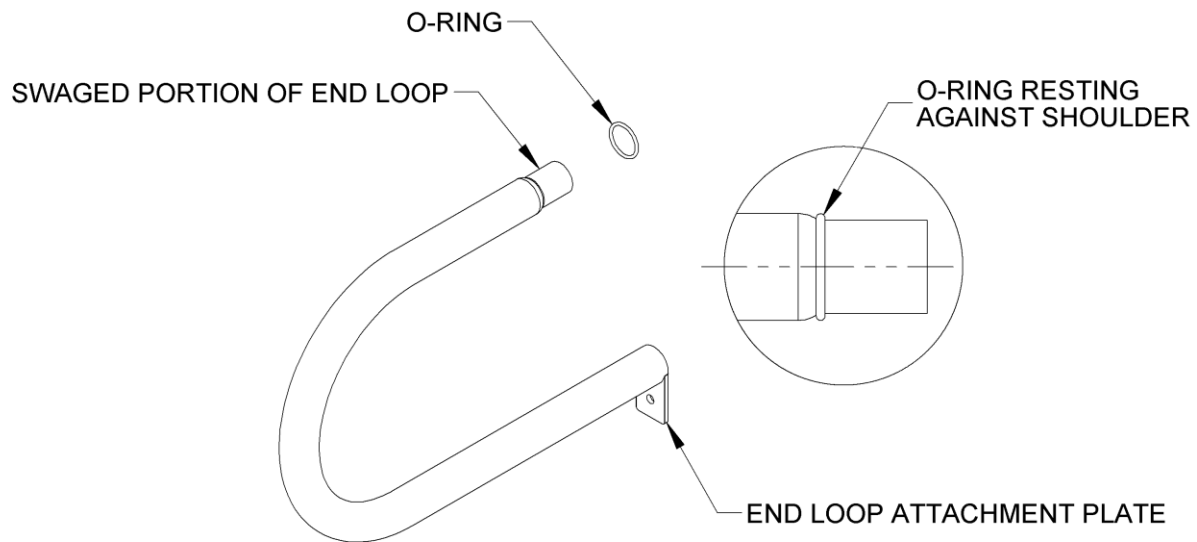


FIG. 7.6

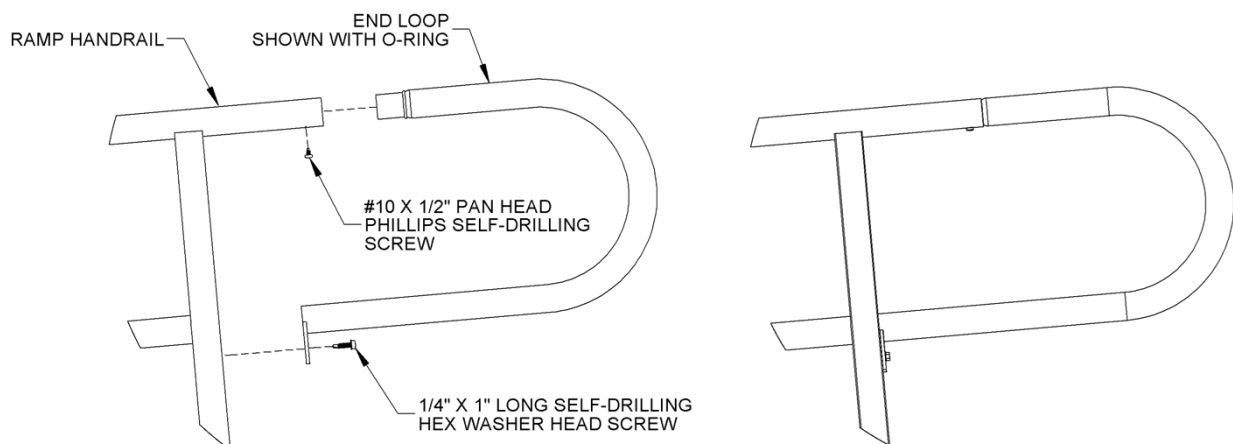


FIG. 7.7

7.4. INSTALL RAMP CORNER PROTECTORS

- 7.4.1. Install protective caps over side rail corners by placing one cap on each side at both the top and bottom of the ramp or ramp run (FIG. 7.8). If necessary, use construction adhesive to bond the cap to the ramp.

7.5. TOUCH UP ARCHITECTURALLY FINISHED HANDRAILS

- 7.5.1. As needed, use sandpaper (180 grit or equivalent) for blending scratches on architecturally finished handrails. Sand in direction of the grain as shown (FIG. 7.9).



Do not use on painted or powder-coated surfaces.

7.6. FINAL CHECKS

- 7.6.1. Ensure that all fasteners are in place and fastened securely.
- 7.6.2. Walk on the assembled system, checking for any undue movement.
 - ⚠ Use the assembled system only after system stability has been confirmed.
- 7.6.3. Remove any metal chips and other assembly debris.
- 7.6.4. Ensure that the system's level and slope have not shifted during assembly.
- 7.6.5. Ensure that all handrail ends are covered (either with end caps or end loops).

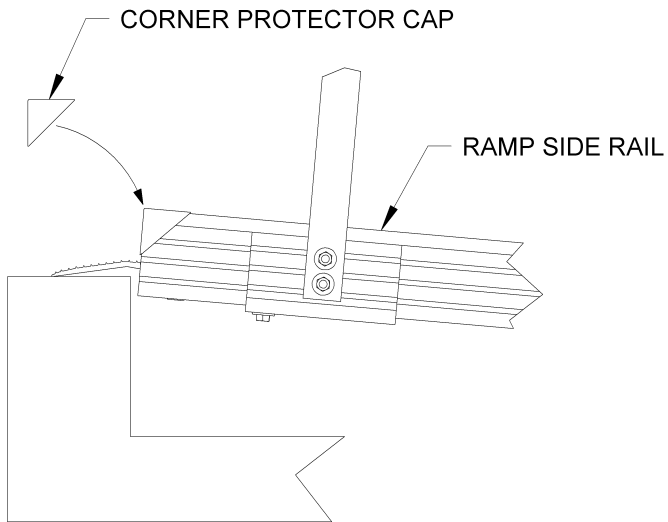


FIG. 7.8



FIG. 7.9

8. MAINTENANCE AND SAFETY

8.1. PERIODIC MAINTENANCE AND SAFETY

- 8.1.1. Always exercise caution when handling, assembling, and or using the system. Proper maintenance and upkeep of the ramp surface is vital.
- 8.1.2. If needed, use a qualified helper when using the system.
- 8.1.3. Always use a lap belt if using the system with mobility equipment.
- 8.1.4. Before use with mobility equipment, refer to your mobility equipment's owner guide for acceptable ramp usage, including proper slope/incline, chair direction, etc.; never exceed its recommendations.
- 8.1.5. Before each use, check the system for worn, loose, or damaged parts. If you find any of these conditions, do not use the system and contact your installer for service or repairs. Failure to do so may result in serious injury.
- 8.1.6. At all times, keep the system clear of dirt, leaves, and other debris that may accumulate on the surface. Simply sweeping the ramp or using a garden hose will usually suffice, but, if needed, a damp cloth or soft brush with soap and water can be used (avoid use of alkaline detergents).
- 8.1.7. If tread surface is covered with ice and or snow, remove ice and or snow before use. Snow accumulation should be shoveled, and the tread surface swept clean. Magnesium Chloride may be used to melt snow or ice accumulation on the ramp; however, after the snow and or ice threat has cleared, be sure to clean the tread surface with soap and water (avoiding alkaloid detergents) to remove Magnesium Chloride residue. See 'DEICING' below for additional information.
- 8.1.8. Keep the system clear of debris and clutter. Do not use the system if walking surface is unsafe.
- 8.1.9. Do not run, jump, or play on or around the system, including climbing on or between the handrails.
- 8.1.10. Do not use any part of the system to support planters, lights, decorations, etc.
- 8.1.11. The system may be slippery in wet conditions; use caution as traction may be reduced.

9. DEICING

- ⚠ For the safety of all users, it is important to keep your system clear of snow, ice, and other debris.
- ⚠ Always follow the deicing agent manufacturer's directions.
- ⚠ Motis LLC will not be held responsible for any injuries or damages that arise from the information provided. ALWAYS check with the deicing product's manufacturer or your local supplier to determine which method is best for your situation.
- ⚠ After the snow and or ice threat has cleared, be sure to clean the tread surface with mild soap and water (avoid alkaline detergents) to remove deicing residue.
- ✋ Sodium Chloride (salt) and Calcium Chloride are particularly damaging to newly poured concrete. In addition, these chemicals should not be applied to brick or stone surfaces.
- ✋ While care has been taken to ensure that the table below is accurate, the information shown is not all-inclusive. Manufacturers of deicing products may make changes to their products as well as recommended functions and usage requirements. The deicing method you choose should be researched with your deicer supplier so you can determine which method is best for your situation.
- ✋ The information below is taken from Fact Sheet 707, Cooperative Extension Service, University of Maryland at College Park, University of Maryland Eastern Shore, and was up to date at the time of this manual's publication.

PRODUCT	MIN. WORKING TEMP (°F)	SPEED OF ACTION	DAMAGES CONCRETE & METAL	HARMFUL TO PLANTS
MAGNESIUM CHLORIDE	-13	VERY FAST	NO	MODERATE
CALCIUM CHLORIDE	5	FAST	YES	YES
SODIUM CHLORIDE (SALT)	18	MODERATE	YES	YES
POTASSIUM CHLORIDE	25	SLOW	OK ON OLD CONCRETE	MODERATE
CALCIUM MAGNESIUM ACETATE (CMA)	25	SLOW	NO	NO

PRODUCT WARRANTY & LIABILITY

GENERAL PRODUCT WARRANTY: Products purchased from the Authorized Dealer (original place of purchase) or Merchant ("Dealer") will be free of defects in material and workmanship at the time of receipt and will meet the specifications stated at the place of purchase transaction or online at the Dealer's website, under normal use and service when correctly installed, operated, and maintained. This product warranty is effective for the period of time stated below, unless otherwise stated in the product instructions or depicted in the product advertisement. All Authorized Dealer warranties are NON-TRANSFERABLE and cover only the original end purchaser. This limited warranty does not cover products purchased through non-authorized dealers. Non-authorized dealer receipts are not accepted for warranty verification.

*****WARRANTY CLAIMS MUST BE MADE DIRECTLY TO THE ORIGINAL PLACE OF PURCHASE.*****

WARRANTY PERIOD: This warranty remains in force for one year from the date of the product's accepted delivery. The Authorized Dealer offers a one-year manufacturer's warranty for most products unless otherwise specified on the product advertisement.

WARRANTY SERVICE: The Authorized Dealer will replace any defective or malfunctioning part at no charge, including payment of the shipping costs of parts or replacement product to and from the manufacturer. The purchaser is responsible for labor charges. If the product does not meet specifications as depicted in the advertisement, the Authorized Dealer will refund the full purchase price of the product.

Questions regarding the warranty on a specific product and warranty claims should be directed to the Authorized Dealer with whom the purchase transaction was made.

WARRANTY LIMITATIONS: The above warranty does not apply to products that are repaired, modified or altered by any party other than the Authorized Dealer; are subjected to unusual physical stress or conditions (such as overloaded ramps or corrosion), natural disaster, governmental actions, wars, strikes, labor disputes, riots, theft, vandalism, terrorism or any reason beyond reasonable control; are damaged due to improper installation, misuse, abuse, accident or negligence in use, storage, transportation or handling, or tampering; or to products that are considered consumable items or items requiring repair or replacement due to normal wear and tear.

Product should be inspected prior to signing for delivery. Product damage incurred during shipping, unless noted on the Bill of Lading at the time of delivery, renders this warranty void.

LIMITED LIABILITY: In no event shall **THE AUTHORIZED DEALER** be liable to the purchaser or any third party for any indirect, incidental, consequential, special, exemplary, or punitive damages arising out of the use of the product, including, without limitation, property damage, loss of value of the product or any third party products that are used in or with the product, or loss of use of the product or any third party products that are used in or with the product.

