FAIRWAY RAILING™

BY Envision OUTDOOR LIVING PRODUCTS

TRADITIONAL COMPOSITE RAILING

INSTALLATION GUIDE

Envision™ OUTDOOR LIVING PRODUCTS

RAILING PRODUCTS BEGIN TO AGE AS SOON AS THEY ARE EXPOSED TO NATURE. BUILDINGS EXPERIENCE AGING FACTORS DIFFERENTLY, SO IT IS DIFFICULT TO PREDICT HOW LONG RAILING PRODUCTS WILL LAST. THAT IS WHY ENVISION PROVIDES A 25-YEAR LIMITED WARRANTY FOR TRADITIONAL COMPOSITE RAILING SYSTEMS THAT INCLUDES A BINDING ARBITRATION CLAUSE AND OTHER TERMS AND CONDITIONS WHICH ARE INCORPORATED HEREIN BY REFERENCE. YOU MAY OBTAIN A COPY OF THE LIMITED WARRANTY AT ENVISIONOUTDOORLIVING.COM OR BY CALLING 1-800-598-5245.

PREPARATION & TOOL CHECKLIST

Before You Begin:

Important Product Safety and Pre-Installation Information

The following installation instructions are provided to guide you through the installation process of the Traditional Composite railing. Envision shall not be held liable for improper or unsafe installations. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY LEAD TO AN UNSAFELY INSTALLED PRODUCT AND WILL ADVERSELY AFFECT COVERAGE UNDER THE LIMITED WARRANTY. Envision recommends that all designs be reviewed by a licensed architect, engineer, or local building official before installation to ensure that they are safe and in compliance with local building code requirements.

Fire and other sources of excessive heat may damage Traditional Composite railing. Damage caused by fire or other heat sources may include melting, sagging, warping, discoloration, charring, increased expansion or contraction, accelerated weathering, etc.

Low-E glass is one potential source of excessive heat because it is designed to reflect more sunlight than traditional glass. This enhanced reflectivity combined with any irregularity in the window glass can concentrate sunlight onto the railing and cause heat build-up on areas of the railing surface. When this occurs, damage to the railing is possible. Contact the manufacturer of the product which contains the Low-E glass for suggestions to reduce or eliminate the reflected heat.

IMPORTANT: A railing system which has been damaged or exhibits signs of excessive wear or weakness must be replaced or repaired immediately as it may be a safety hazard.

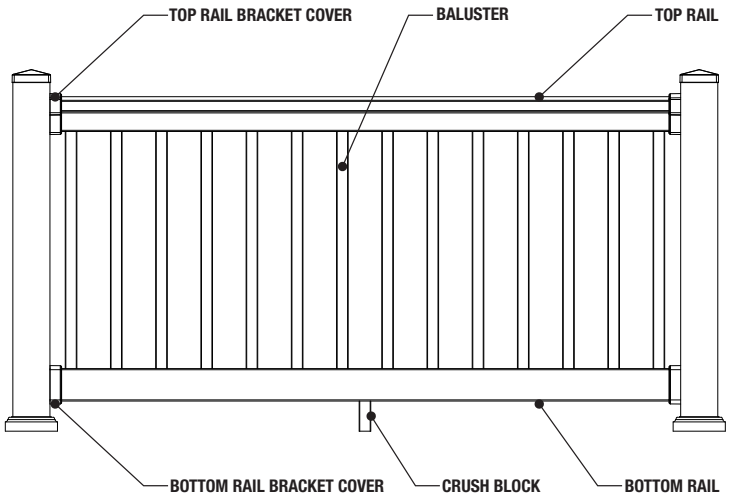
Railing will retain heat when exposed to direct or reflected sunlight. Exercise caution around these heated surfaces.

If installing Cable, HB, or Glass Slats see installation instructions for those specific infills found on EnvisionOutdoorLiving.com.

Kit Contents

Straight Rail Kits:
Top Rail (6', 8', or 10)
Bottom Rail (6', 8', or 10')
Square Balusters (6'=14; 8'=19; 10'=24)
Round Balusters (6'=15; 8'=21; 10'=26)
Top Rail Metal Brackets (2)
Bottom Rail Metal Brackets (2)
Top Rail Bracket Covers (2)
Bottom Rail Bracket Covers (2)
1" Stainless Screws (13)
2" Stainless Screws (13)
Crush Block (6' & 8'=1; 10'=2)
Bracket Placement Template (on box)

Stair Rail Kits:
Top Rail (6' or 8')
Bottom Rail (6' or 8')
Square Balusters (6'=11; 8'=15) Round Balusters (6'=14; 8'=18)
Top Rail Metal Brackets (2)
Bottom Rail Metal Brackets (2)
Top Rail Bracket Covers (2)
Bottom Rail Bracket Covers (2)
1" Stainless Screws (13)
2" Stainless Screws (13)
Crush Block (6'=0; 8'=1)

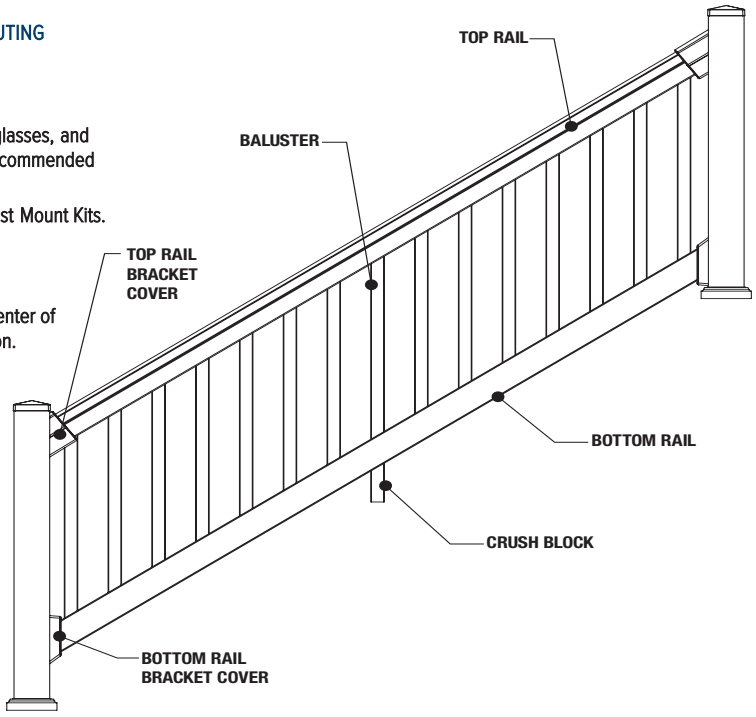


Wood/Composite and Concrete Post Mount Kits:
See pages 7 — 8

45° Fixed Angle Adapter Kit:
Top Rail Angle Adapter (1)
Bottom Rail Angle Adapter (1)
Note: No hardware is included in the 45° Fixed Angle Adapter Kit as the hardware from the Straight Rail Kit is used.

22.5° Fixed Angle Adapter Kit:
Top Rail Angle Adapter (1)
Bottom Rail Angle Adapter (1)
#10 × 1-3/4" screws (5)
#10 × 3" self-drilling screws (3)

IMPORTANT: SUBSTITUTION FOR THESE COMPONENTS IS NOT ALLOWED, AS SUBSTITUTING COMPONENTS COULD CAUSE A SAFETY HAZARD.



Tools Required for Installation
Tape measure, miter saw or hack saw, drill, #2 square drive bit, level, pencil, safety glasses, and hearing protection. For larger construction projects, a miter saw and drill are strongly recommended for quicker installation.

Note: Some specific tools are required to install the Wood/Composite and Concrete Post Mount Kits. Please see pages 7 — 8 for full details.

MEASURE SPAN BETWEEN POSTS:
Traditional Composite Rail Kits are designed for the 6', 8', or 10' lengths from center-to-center of posts. Envision recommends verifying the span between posts before beginning installation.

TABLE OF CONTENTS

STRAIGHT RAIL INSTALLATION

6', 8', or 10' Straight Rail Kit available in 36" or 42" rail heights

Installation Steps:

1. Install and prepare the posts or other mounting surfaces for the Traditional Composite installation. Ensure the mounting surfaces are level and plumb. (Fig. 1) Envision recommends using the Post Mount Systems or covering the wood posts with our matching Post Sleeves. It is acceptable for direct attachment of railing sections to conventional 4" x 4" or larger wood posts without use of Post Sleeves.

To install the Post Mount Kit, see the full post mount instructions on pages 7 — 13.

2. Measure the length between the posts and confirm the Railing Kit required. (Fig. 2)

STRAIGHT RAIL KIT RAIL LENGTHS			
Nominal Rail Length	6'	8'	10'
Actual Rail Length	70-1/4"	93-7/8"	120"

3. Lay the bottom rail beside the posts with the prerouted Baluster holes facing upward and evenly spaced. Mark the rail with an additional 1/8" removed from each end to compensate for the metal brackets. (Fig. 3)

IMPORTANT: A minimum of 1-7/8" rail length is required from the end of rail to the first Baluster on both ends of the rail. Check the end spacing and shift the position of the rail before cutting if required. Ensure that the gap between the posts and the Balusters will not exceed 4".

When positioned and marked properly, cut the bottom rail.

4. Lay the top rail beside the bottom rail with the Baluster holes aligned. Mark and cut the top rail to match the bottom rail length and the end spacing. (Fig. 3)

5. Trim the Crush Block(s) to appropriate length and insert into the precut hole(s) on the underside of the bottom rail.

NOTE: Typical Crush Block length is 5-1/4" to allow for a 2" clearance between the deck surface and the bottom rail. The formula for the Crush Block length is: the deck surface to the bottom rail clearance +3-1/4".

IMPORTANT: Be sure to check with your local building code officials for any bottom rail clearance or rail height requirements. Improper rail clearance or rail height could cause a safety hazard.

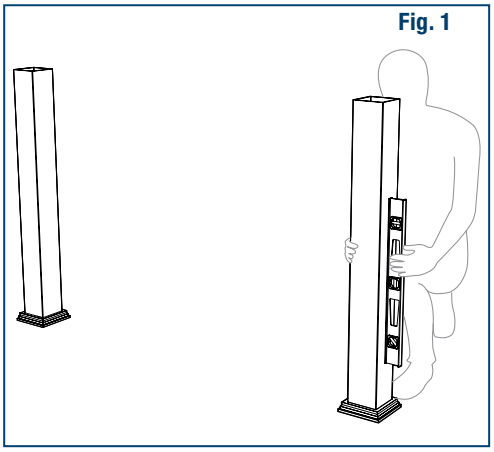


Fig. 1

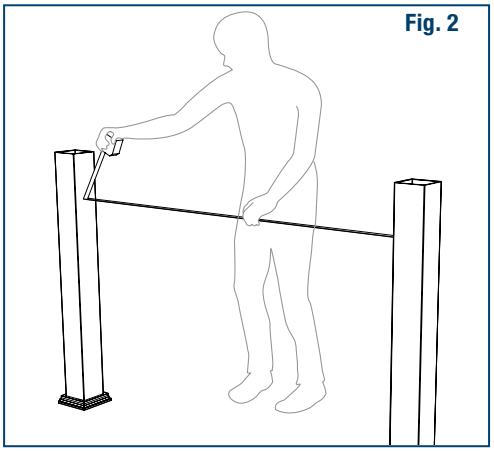


Fig. 2

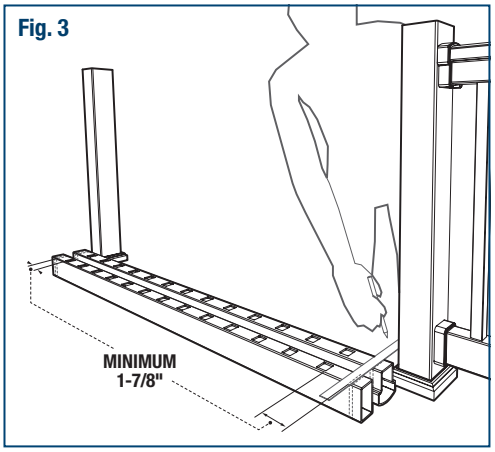


Fig. 3

STRAIGHT RAIL INSTALLATION (continued)

6. Use the bracket placement template to position the top and the bottom metal brackets (marked "T" and "B") and secure the brackets in place using the six screws provided, affixing four screws on the top and two screws on the bottom. (Fig. 4) Use the 2" screws for mounting to a wood post or the 1" screws included in the Post Mount kit when mounting to the Post Mount System.

   NOTE: The template is designed for a 2" clearance from the deck surface to the bottom rail.

7. Slide the bottom bracket covers over the bottom rail and position the rail between the bottom rail metal brackets. (Fig. 5) Level the rail and secure in place on both sides of the metal brackets using two of the 1" screws provided. Snap the bracket covers over the metal brackets.

   NOTE: When installing the bracket covers over the metal brackets, it may be necessary to use a flat-tipped screwdriver or a putty knife to assist the cover over the metal bracket.

8. Insert Balusters into the prerouted bottom rail holes. Check with your local code officials for any rail height requirements.

   NOTE: Due to the aluminum insert in the 10' rail, the top rail of the 10' sections will rest 3/8" higher than the 6' or 8' sections. The bottom of the top rail metal bracket will be installed flush with the bottom of the top rail. This will not affect the integrity of the railing system.

9. Slide top bracket covers over both ends of the top rail. Align the top rail over the Balusters and insert the Balusters one at a time until the top rail is fully installed. (Fig. 6)

10. Secure the top rail in place by installing the two 1" screws on both sides of the metal brackets. Snap the bracket covers over the metal brackets.

    NOTE: When installing the bracket covers over the metal brackets, it may be necessary to use a flat-tipped screwdriver or a putty knife to assist the cover over the metal bracket.

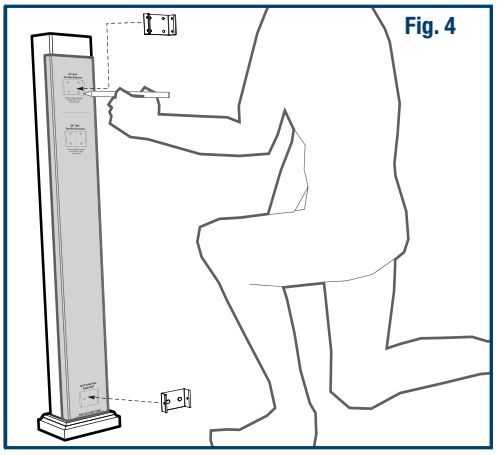


Fig. 4

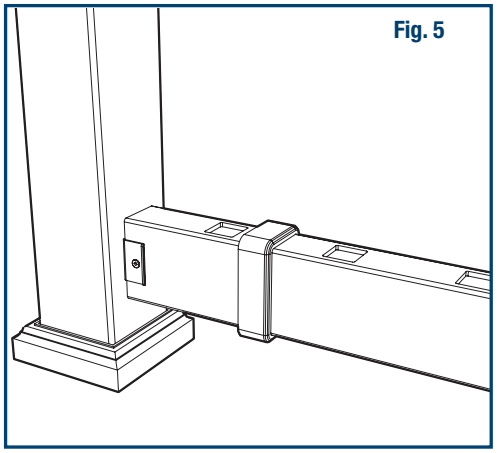


Fig. 5

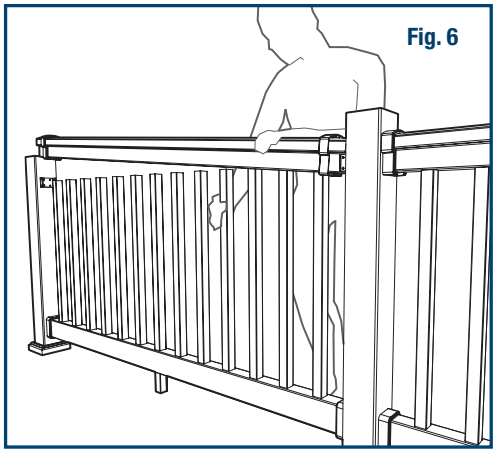


Fig. 6

STAIR RAIL INSTALLATION

6' or 8' Stair Rail Kit available in 36" or 42" rail heights

Installation Steps:

1. Install and prepare posts for Railing installation. Ensure mounting surfaces are level and plumb. (Fig. 1) Envision recommends using post mount systems or wood posts covered with our matching post sleeves. It is acceptable for direct attachment of Railing sections to conventional 4"x 4" or larger wood posts without use of Post Sleeves.

   To install the Post Mount Kit, see the full post mount instructions on pages 7 — 13.

2. Measure the length between the posts and confirm the Railing Kit required. (Fig. 2)

   Refer to the Stair Slope Chart on page 6 for the degree of angle required.

STAIR RAIL KIT RAIL LENGTHS		
Nominal Rail Length	6'	8'
Actual Rail Length	78"	102"

3. Lay the bottom rail beside the posts with the Baluster holes facing upward. The rail should extend past each of the mounting surfaces. For the 8' Rail Kits, verify that the Crush Block location on the underside of the bottom rail will be positioned securely onto the stair tread.

4. Mark the required rail length with an additional 1/8" removed from each end to compensate for the metal brackets. (Fig. 3)

   IMPORTANT: For even end spacing, a minimum of 2-3/8" rail length is required from the end of rail to the first Baluster hole on both ends of the rail. If even end spacing is not required, a minimum of 2-3/8" rail length on the lower end and 2" rail length on the upper end of the rail is allowable. Check the end spacing and verify minimum length requirements prior to cutting. Ensure that the end space gaps between the posts and the Balusters will not exceed 4".

   When positioned and marked properly, cut the bottom rail to the proper angle.

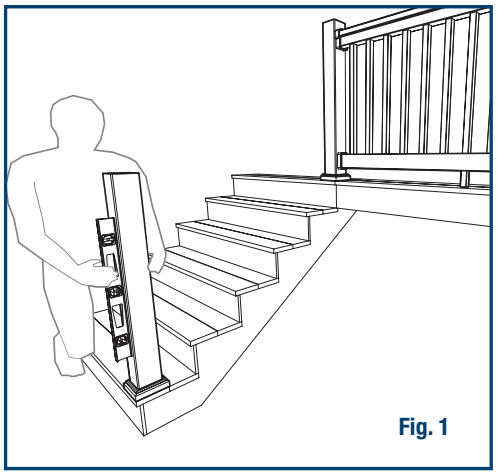


Fig. 1

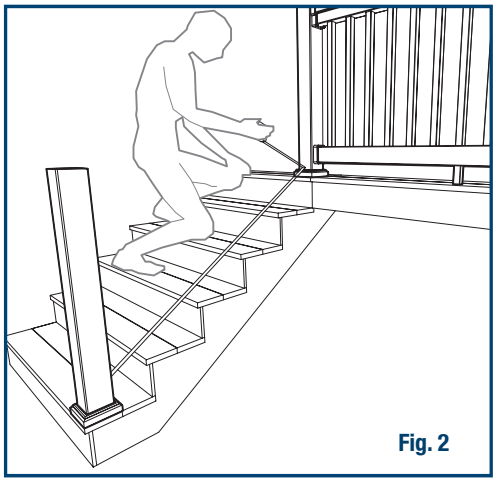


Fig. 2

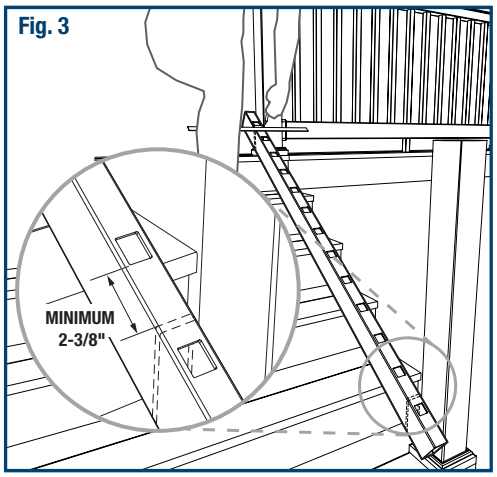


Fig. 3

STAIR RAIL INSTALLATION (continued)

5. Lay the top rail beside the bottom rail with the Baluster holes facing and aligned. (Fig. 4) Using a straight edge, mark the continuation of the bottom rail angle onto the top rail. Ensure that the end spacing from the end of the rail to the first Baluster on each end of the top rail matches the bottom rail end spacing below. Cut the top rail.

6. Slide the bracket covers over both ends of the bottom rail and position the bottom rail between the posts at the desired height and angle. Mark the location on the posts. (Fig. 5)

NOTE: SKIP STEP 7 IF YOU ARE INSTALLING A 6' STAIR SECTION

7. Trim the Crush Block to accommodate the desired bottom rail clearance and insert into the precut hole on the underside of the bottom rail.

IMPORTANT: Be sure to check with your local building code officials for any bottom rail clearance or rail height requirements. Improper rail clearance or rail height could cause a safety hazard.

8. Position the bottom rail metal brackets (marked "B") so that they are centered on both the post and the bottom rail. Install using the two screws provided. Use the 2" screws for mounting to a wood post, or the 1" screws included in Post Mount kit when mounting to the Post Mount System.

9. Position the rail between the bottom rail metal brackets. (Fig. 6) Level the rail at the desired angle and secure in place on both sides of the metal brackets using the two 1" screws provided. Snap the bracket covers over the metal brackets.

NOTE: When installing the bracket covers over the metal brackets, it may be necessary to use a flat-tipped screwdriver or a putty knife to assist the cover over the metal bracket.

10. Determine the location of the top rail metal brackets (marked "T"). Insert Balusters in the first and the last holes of the bottom rail. (Fig. 7) Align the top rail over the Balusters and install. Ensure the top rail is fully nested and level with the bottom rail. Position the top rail metal brackets on the rail and mark the bracket locations on each post.

11. Remove the top rail. Position the top rail metal brackets on the posts and install using the four screws provided. Use the 2" screws for mounting to a wood post, or the 1" screws included in Post Mount kit when mounting to the Post Mount System.

12. Insert the Balusters into the pre-routed bottom rail holes.

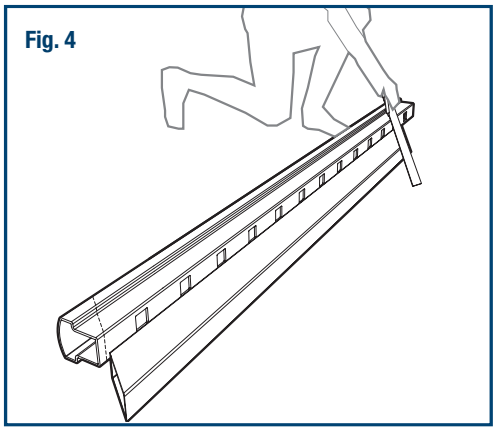


Fig. 4

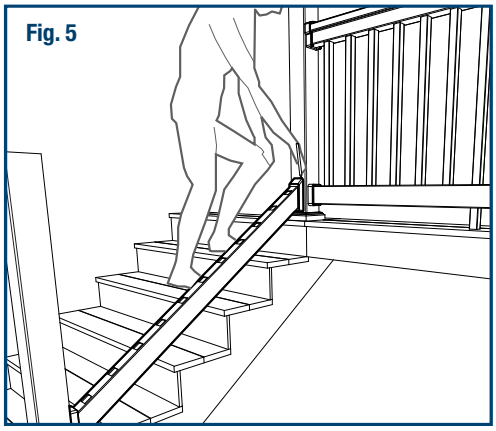


Fig. 5

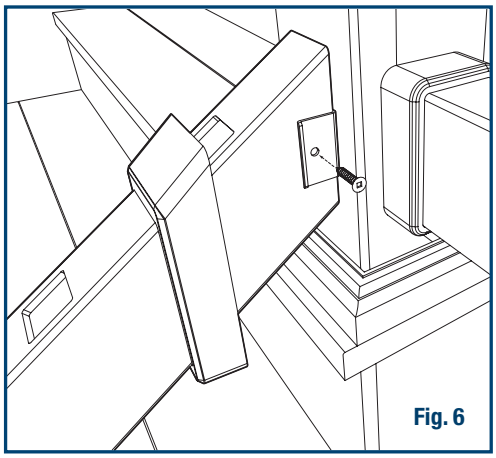


Fig. 6

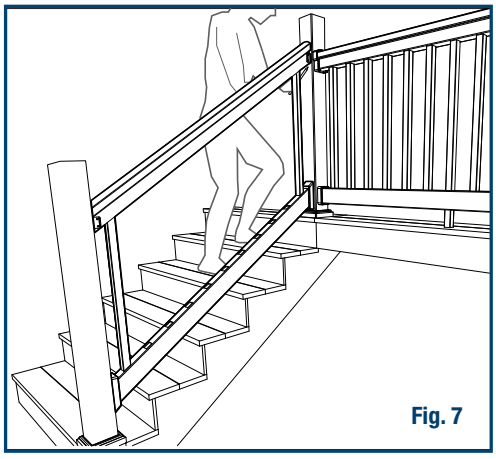


Fig. 7

13. Slide the bracket covers over both ends of the top rail. Align the top rail over the Balusters and insert the Balusters one at a time until the top rail is fully installed. (Fig. 8)

14. Secure the top rail in place by installing two of the 1" screws on both sides of the metal brackets. (Fig. 9) Snap the bracket covers over the metal brackets.

NOTE: When installing the bracket covers over the metal brackets, it may be necessary to use a flat-tipped screwdriver or a putty knife to assist the cover over the metal bracket.

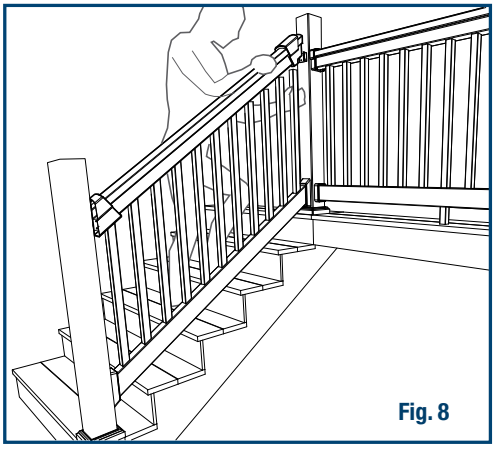


Fig. 8

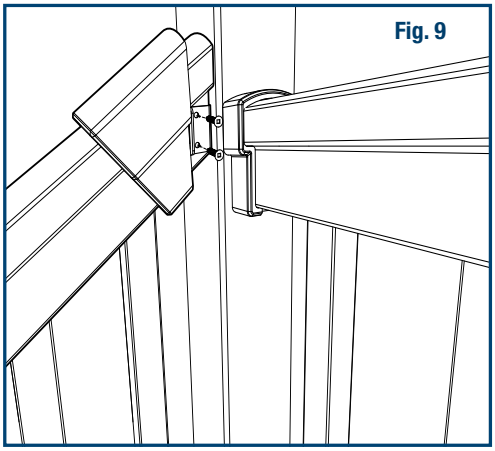


Fig. 9

Traditional Composite Stair Slope Chart

RUN (inches)

RISE (inches)	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15
3.5	28	27	25	24	22	21	20	19	18	18	17	16	16	15	15	14	14	13
4	32	30	28	27	25	24	23	22	21	20	19	18	18	17	17	16	15	15
4.5	35	33	31	29	28	27	25	24	23	22	21	21	20	19	18	18	17	17
5	38	36	34	32	30	29	28	27	25	24	23	23	22	21	20	20	19	18
5.5	40	38	36	35	33	31	30	29	28	27	26	25	24	23	22	21	21	20
6	43	41	39	37	35	34	32	31	30	29	28	27	26	25	24	23	22	22
6.5	45	43	41	39	37	36	34	33	32	31	29	28	27	27	26	25	24	23
7	47	45	43	41	39	38	36	35	34	32	31	30	29	28	27	27	26	25
7.5	49	47	45	43	41	40	38	37	36	34	33	32	31	30	29	28	27	27
8	51	49	47	45	43	42	40	39	37	36	35	34	33	32	31	30	29	28
8.5	53	51	49	47	45	43	42	40	39	38	36	35	34	33	32	31	30	30
9	54	52	50	48	47	45	43	42	41	39	38	37	36	35	34	33	32	31
9.5	56	54	52	50	48	47	45	44	42	41	40	38	37	36	35	34	33	32
10	57	55	53	51	50	48	46	45	44	42	41	40	39	38	37	36	35	34

☐ Stair Rail 30-35° Bracket included in kit ▒ Stair Rail 36-41° Bracket included in kit

POST MOUNT INSTALLATION WOOD/COMPOSITE DECK APPLICATION

Post Mount Kit 4" x 4" x 38" for use with all 6', 8', and 10' x 36" Railing Kits
Post Mount Kit 4" x 4" x 44" for use with all 6' and 8' x 42" Railing Kits

COMPONENTS:

POST MOUNT COMPONENTS:

- 4" × 4" Post Sleeve (1)
- Pyramid Post Cap (1)
- New England Post Ring (1)
- Post Mount Member (1)
- Guide Blocks (2)
- 1" Stainless Steel Screws (13)

OPTIONAL MARQUEE POST MOUNT COMPONENTS:

- Post Mount Member (1)
- Guide Blocks (2)
- 4" × 4" Post Sleeve (1)*
- Pyramid Post Cap (1)*
- New England Post Ring (1)*

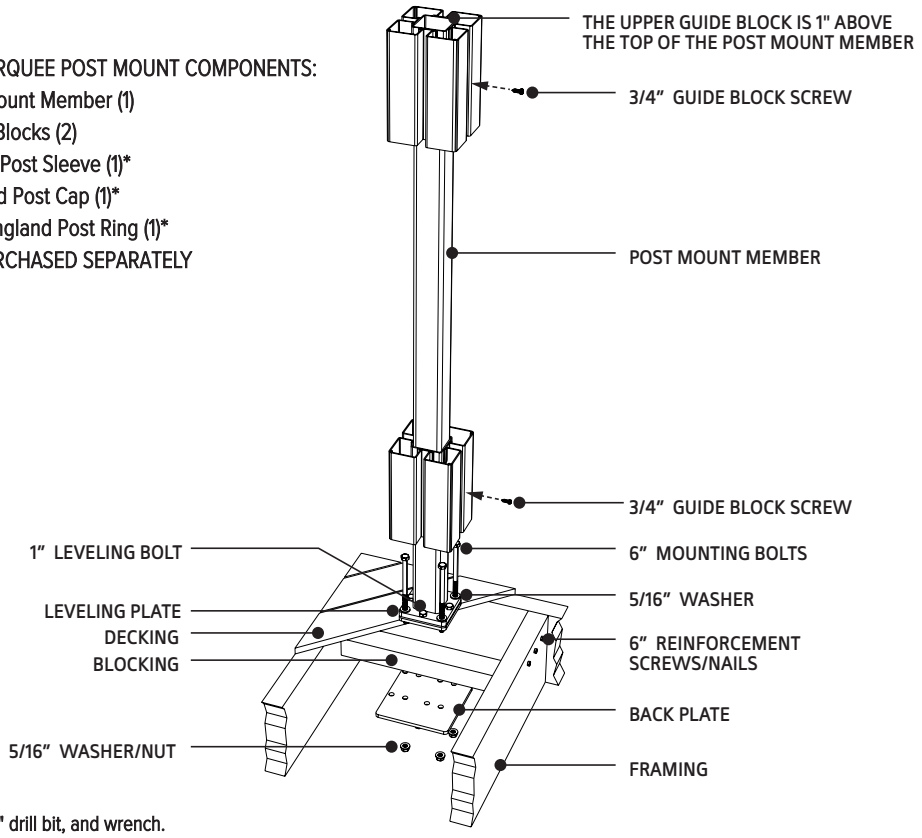
*MUST BE PURCHASED SEPARATELY

WOOD/COMPOSITE ACCESSORY KIT:

- 3/4" Self-Drilling Guide Block Screws (4)
- Leveling Plate (1)
- 5/16" x 1" Leveling Bolts (4)
- 5/16" Washers (8)
- Back Plate (1)
- 5/16" x 6" Mounting Bolts (4)
- 5/16" Mounting Nuts (4)

IMPORTANT: SUBSTITUTION FOR THESE COMPONENTS IS NOT ALLOWED, AS SUBSTITUTING COMPONENTS COULD CAUSE A SAFETY HAZARD.

Fig. A



TOOLS REQUIRED FOR INSTALLATION:

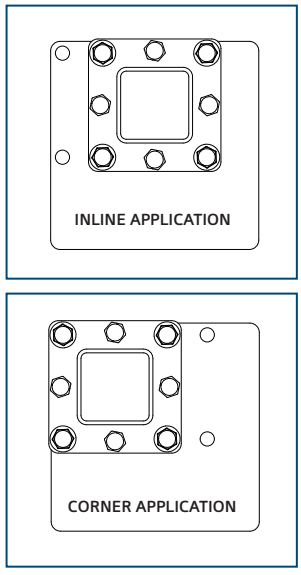
Safety glasses, hearing protection, tape measure, level, drill, 3/8" drill bit, and wrench.

Installation Steps:

1. Reinforce the post mount location by installing a minimum of 3" of blocking under the mounting location. Cut the blocking to the length of the joist span opening and secure with the 3" deck screws or nails (not provided) directly under the deck surface.
2. Using the leveling plate as a template, mark the locations of the four mounting holes to be drilled. The leveling plate should be placed so that the four mounting holes will be drilled through the blocking and not into the framing (not less than 1-1/2" from edge of decking). Drill four holes through the deck and the blocking using a 3/8" diameter drill bit.
3. Install the four leveling bolts into the post mount member. Place the leveling plate on the decking surface and align over the four drilled holes. Place the post mount member on top of the leveling plate, and align the four holes. Adjust the leveling screws to ensure the post mount member is level.
4. Install the four 6" mounting bolts with 5/16" washers as shown. (Fig. A) On the underside of the blocking, place the back plate over the exposed mounting bolts. Use the centered holes for in-line applications and the offset holes for corner applications. (Fig. B) Secure the back plate by using the supplied 5/16" mounting nuts and 5/16" washers.
5. Install the two guide blocks onto the post mount member. Position the lower guide block at the bottom of the post and secure in place by installing one of the supplied 3/4" self-drilling screws through the center of the guide block and into the post until firmly seated. Position the upper guide block so that the top of the guide block is 1" above the top of the post member and secure in place by installing one of the supplied 3/4" self-drilling screws through the center of the guide block and into the post until firmly seated.
6. Position the post ring over the post sleeve and slide over the post mount system until the post sleeve is flush to the deck surface. Attach the post cap to the post sleeve with PVC adhesive (not provided).

   To install a Straight or Stair Rail Kit to the Post Mount, use the 1" screws provided in this kit. Refer to the Straight Instructions, page 2, or Stair Rail Installation Instructions, pages 4 — 6, for details.

Fig. B



POST MOUNT INSTALLATION CONCRETE APPLICATION

Post Mount Kit 4" x 4" x 38" for use with all 6' x 36" Railing Kits
Post Mount Kit 4" x 4" x 44" for use with all 6' x 42" Railing Kits

COMPONENTS:

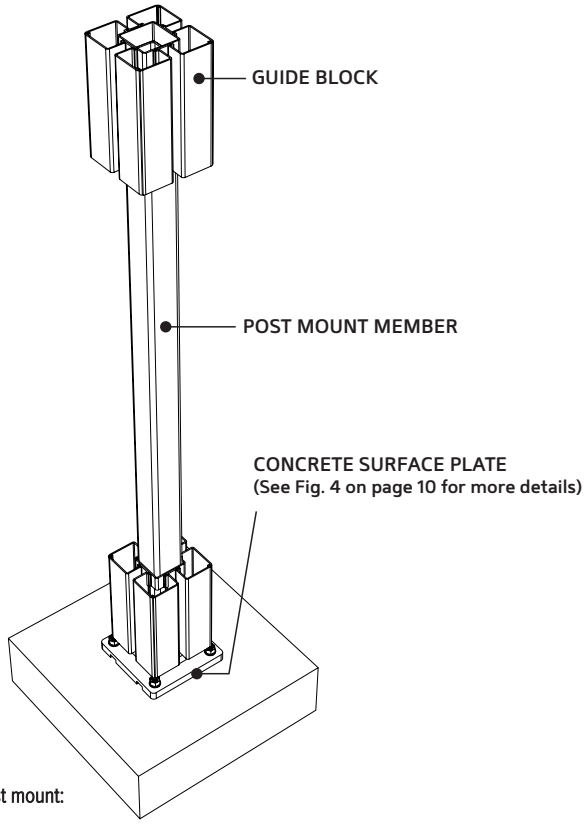
POST MOUNT COMPONENTS:

- 4" × 4" Post Sleeve (1)
- Pyramid Post Cap (1)
- New England Post Ring (1)
- Post Mount Member (1)
- Guide Blocks (2)
- 1" Stainless Steel Screws (13)

OPTIONAL POST MOUNT COMPONENTS:

- Post Mount Member (1)
- Guide Blocks (2)
- 4" × 4" Post Sleeve (1)*
- Pyramid Post Cap (1)*
- New England Post Ring (1)*

*MUST BE PURCHASED SEPARATELY



CONCRETE ACCESSORY KIT:

- 5-1/2" x 5-1/2" Concrete Surface Plate (1)
- 3/8" x 2" Coated Hex Bolts (4)
- 3/8" Coated Lock Washers (4)
- 3/8" Coated Hex Nuts (4)
- 5/16" x 1" Leveling Bolts (4)
- 3/4" Self-drilling Guide Block Screws (4)

CONCRETE ANCHORING SYSTEM:

- 3/8" x 5-1/8" Stainless Steel Threaded Rods (4)
- 3/8" Stainless Steel Washers (4)
- 3/8" Stainless Steel Nuts (4)

IMPORTANT: SUBSTITUTION FOR THESE COMPONENTS IS NOT ALLOWED, AS SUBSTITUTING COMPONENTS COULD CAUSE A SAFETY HAZARD.

CONCRETE ANCHORS:

Envision requires one of the adhesive brands listed below to be used in the anchoring system for this post mount:

- Simpson Strong-Tie® SET-XP® adhesive
  The anchoring system must be installed in accordance with the manufacturer's instructions and ICC-ES ESR-2508, www.icc-es.org/reports/pdf_files/ESR-2508.pdf. See www.strongtie.com for additional tools or materials required to use this adhesive.
- Simpson Strong-Tie® AT-XP® adhesive
  The anchoring system must be installed in accordance with the manufacturer's instructions and IAPMO ER #263, www.iapmoes.org/Documents/ER_0263.pdf. See www.strongtie.com for additional tools or materials required to use this adhesive.

Concrete anchors must be installed in dry, normal weight concrete* with a specified compressive strength of 2,500 psi to 8,500 psi. In addition, it is the installer's responsibility to ensure that the application and conditions for use of this post mount are in accordance with CCRR-0118** and the Requirements and Limitations provided in Appendix A on page 8 of these instructions. Failure to correctly anchor the post mount in accordance with the above requirements could result in a safety hazard.

* Concrete made with the standard mix of component materials and weighing approximately 148 lbs. per cu. ft. **
CCRR-0118 can be found at www.intertek.com/building/ccrr/.

REQUIREMENTS FOR USE WITH 6' RAILING KITS:

	Minimum Concrete Thickness		Minimum Threaded Rod Embedment		Maximum Anchor Torques	Service Concrete Temperatures	
	38" Post Mount System	44" Post Mount System	38" Post Mount System	44" Post Mount System	(lb-ft)	Max Short Term	Max Long Term
Simpson Strong-Tie® AT-XP®	5"	5-1/2"	3-1/2"	4"	10	180° F	110° F
Simpson Strong-Tie® Set-XP®	5-3/4"	7-1/4"	3-3/4"	5-1/4"*	10	150° F	110° F

* Minimum 6-1/4" #304 Stainless Steel threaded rods must be purchased separately for this application.

TOOLS REQUIRED FOR INSTALLATION:

Safety glasses, hearing protection, tape measure, 7/16" round steel brush, compressed air, torque wrench, hammer drill, 7/16" masonry drill bit, PVC glue, and other tools or items required by the adhesive manufacturer.

Installation Steps:

1. Attach the concrete surface plate to the bottom of the post mount member as shown using four of the supplied 2" coated hex bolts, 3/8" coated lock washers, and coated 3/8" hex nuts. (Fig. 1) Tighten nuts to 33 lb-ft using a torque wrench. Ensure that the hex bolt heads are firmly seated inside the surface plate channels.
2. Determine the post mount location. Using the 5-1/2" x 5-1/2" concrete surface plate as a guide, ensure that the distance from the edge of the concrete to the edge of the surface plate is at least 4-1/4". (Fig. 2)
3. Mark the location of the four concrete surface plate corner holes for drilling. (Fig. 2)

   IMPORTANT: Before continuing with installation, the installer must review and ensure compliance with all Simpson Strong-Tie® adhesive instructions and guidelines.* Failure to do this could result in an unsafe railing system.
4. Drill four boreholes into the concrete to the required embedment depth using a hammer drill and 7/16" masonry drill bit. When drilling, check periodically to ensure boreholes remain plumb and aligned with all four of the concrete surface plate corner holes.

   REQUIRED EMBEDMENT DEPTH FOR THREADED RODS:
   38" or 44" Post Mount Kits: Refer to chart on page 6
5. Properly clean all boreholes using a 7/16" round steel brush and compressed air (see the Simpson Strong-Tie® adhesive manufacturer's instructions*). Boreholes must be free of dust, debris, ice, oil, grease, and other contaminants.
6. Prepare the Simpson Strong-Tie® adhesive according to the manufacturer's instructions.*
7. Inject adhesive into the boreholes without forming air voids, starting from the bottom of each borehole and slowly withdrawing the dispenser. Fill holes approximately 2/3 full or as required to ensure that the annular gap between the threaded rod and concrete is completely filled (see the Simpson Strong-Tie® adhesive manufacturer's instructions*).
8. Insert the supplied threaded rods into the boreholes to the required depth, slowly twisting the rods as they are inserted (see the Simpson Strong-Tie® adhesive manufacturer's instructions*). Remove excess epoxy above the boreholes, and ensure that the mounting surface remains clear of debris (see the Simpson Strong-Tie® adhesive manufacturer's instructions*).

   IMPORTANT: Once installed correctly, do not disturb the threaded rods until the setting time, as designated by the epoxy manufacturer, has elapsed. Do not install the post mount or apply load to the concrete anchors until the adhesive is fully cured. Follow the adhesive setting guidelines published in the Simpson Strong-Tie® adhesive manufacturer's instructions.*
9. After the concrete anchors are fully cured, carefully position the post mount over the threaded rods and install flush onto the concrete surface.
10. Install four of the supplied 3/8" stainless steel washers and nuts over the threaded rods (Fig. 3), and tighten the nuts to 10 lb-ft using a torque wrench.
11. Check the post with a level. If the post needs to be adjusted for plumb, install four of the supplied 1" leveling bolts. (Fig. 3) Adjust the 1" leveling bolts until the post is plumb and all four leveling bolts are in contact with the concrete surface plate.

    NOTE: It may be necessary to slightly loosen the 3/8" coated hex nuts to allow the post mount member to be adjusted. Do not adjust the 3/8" stainless steel hex nuts used for concrete anchoring. When the post is level, reapply 33 lb-ft torque on the 3/8" coated hex nuts.

Fig. 1

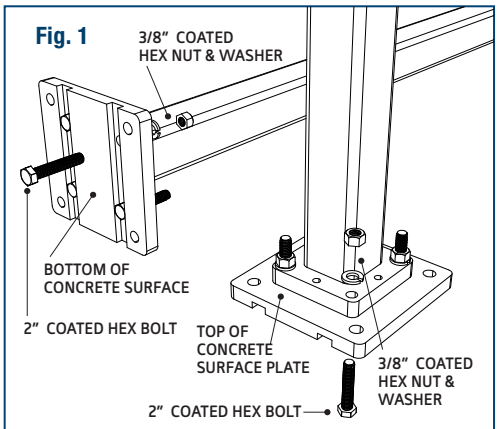


Fig. 2

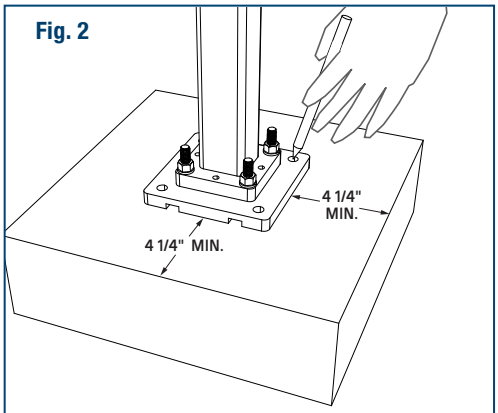
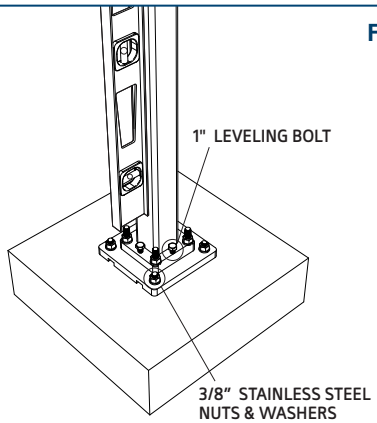


Fig. 3



*www.strongtie.com/products/anchoring-systems/technical-notes/anchoring-adhesives/installation-instructions

12 Install the post ring over the concrete surface plate.

NOTE: For 38" Post Mount Systems, a portion of the 5-1/8" threaded rods may need to be removed for proper post ring fit. If required, carefully trim the threaded rods ensuring that a minimum of three threads remain above each of the stainless steel nuts. (Fig. 4) Recheck and reapply the required torque on each of the stainless steel hex nuts.

13 Install the two guide blocks onto the post mount member (Fig. 5). Position the lower guide block at the bottom of the post and secure in place by installing one of the supplied self-drilling screws through the center of the guide block and into the post until firmly seated. Position the upper guide block so that the top of the guide block is 1" above the top of the post member and secure in place by installing one of the supplied self-drilling screws through the center of the guide block and into the post until firmly seated.

14 Trim the Post Sleeve (sold separately) to the desired length and install over the post mount.

15 Apply PVC adhesive (not provided) to the post cap and install over the top of the post sleeve. To install a Straight or Stair Rail Kit to the Post Mount, use the 1" screws provided in this kit. Refer to the Straight Instructions, page 2, or Stair Rail Installation Instructions, pages 4 — 6, for details.

Fig. 4

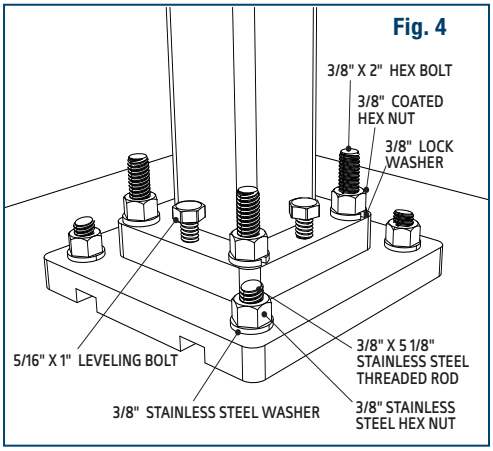
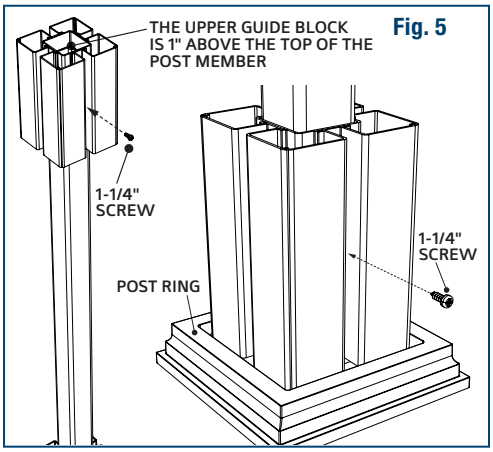


Fig. 5



APPENDIX A: POST MOUNT SYSTEM CONCRETE INSTALLATION REQUIREMENTS AND LIMITATIONS*

1 Installation of this post mount system requires the use of adhesive listed in the CONCRETE ANCHORS section; refer to page 8 in these instructions.

2 Installation must be in cracked or uncracked normal weight concrete with a specified compressive strength of 2,500 to 8,500 psi.

3 Use only the fasteners included with Post Mount Kits during this installation.

EXCEPTION: Minimum 6-1/4" #304 Stainless Steel threaded rods must be purchased separately for 44" Concrete Post Mount applications.

4 Installation condition must be dry.

5 Boreholes must be drilled in accordance with the adhesive anchoring system requirements.

6 Special Inspection and Jobsite Quality Assurance must be provided in accordance with each respective manufacturers' adhesive evaluation report.

7 In-service concrete temperature must be per each respective manufacturer's anchor evaluation report and per the Requirements Table on page 8.

8 Applied torques to concrete anchors shall not exceed limits established by each manufacturer's adhesive anchoring system evaluation reports.

9 Installation must be in structures assigned to Seismic Design Categories A and B as defined in the currently adopted version of either the International Building Code, International Residential Code, or Florida Building Code.

10 Installations are not subject to fatigue or shock loading.

11 For installations not consistent with the requirements and limitations noted above, calculations and details demonstrating compliance must be prepared by a licensed professional engineer and submitted to the building official having jurisdiction in that area. Otherwise, this installation could be improper and create a safety hazard.

*See CCRR-0118 at www.intertek.com/building/ccrr/.

FIXED ANGLE ADAPTER INSTALLATION 22.5° on Wood Post, 45° on Wood Post, and 45° Post Mount

22.5° Fixed Angle Adapter Instructions for Wood Post Applications ONLY (see page 12 for 22.5° Post Mount Applications)

45° Fixed Angle Adapter Instructions for Wood Post & Post Mount Applications

Installation Steps:

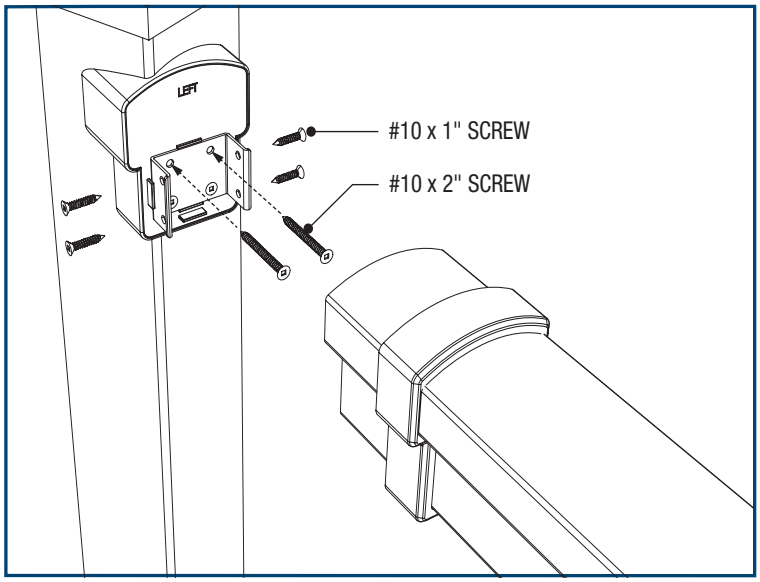
1. Install and prepare all the mounting surfaces and posts to which the Railing will be installed. Ensure the mounting surface is level and plumb. Envision recommends using the post mount systems or wood posts covered with our matching Post Sleeves.
2. Measure and mark the post 6" above the deck surface.
3. Position the bottom rail angle adapter on the post so that the top of the adapter is 6" above the deck surface. Place the bottom rail metal bracket (marked "B") included in Railing kits onto the face of the bottom rail angle adapter.

NOTE: These installation instructions provide a 2" clearance between the deck surface and the bottom rail.

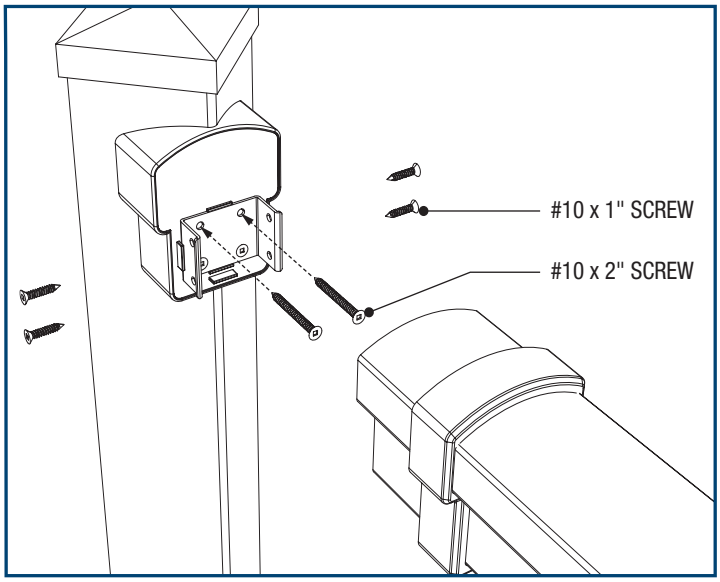
IMPORTANT: Be sure to check with your local building code officials for any bottom rail clearance or rail height requirements. Improper rail clearance or rail height could cause a safety hazard.

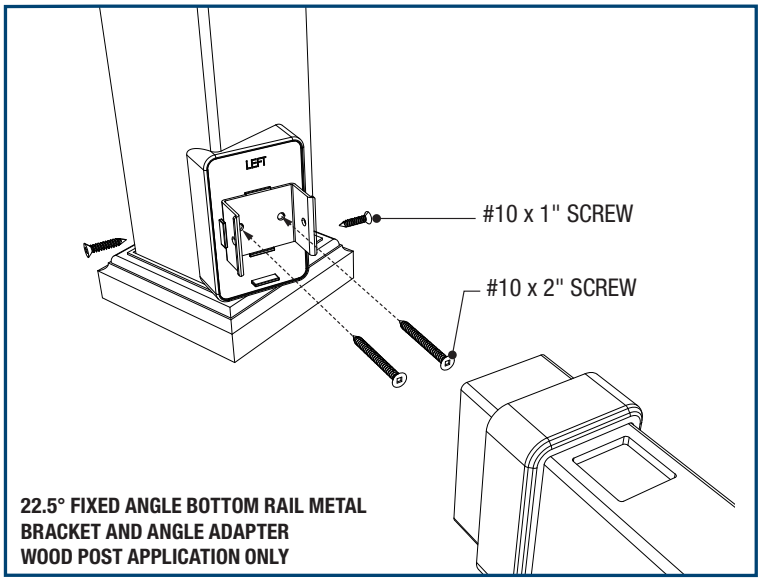
4. Install the bottom rail metal bracket and the angle adapter to the post using two of the 2" screws provided in the Railing kits. Ensure the angle adapters are installed evenly and flush to the post corners.
5. For the 36" height rail systems, measure 36-1/2" above the deck surface and mark the post. For the 42" height rail systems, measure 42-1/2" above the deck surface and mark the post.
6. Position the top rail adapter on the post so that the top of the adapter is aligned with the mark. Place the top rail metal bracket (marked "T") included in Railing kits onto the face of the top rail angle adapter.
7. Install the top rail metal bracket and the angle adapter to the post using four 2" screws provided in the Railing kits.

22.5° FIXED ANGLE ADAPTER WOOD POST APPLICATION ONLY

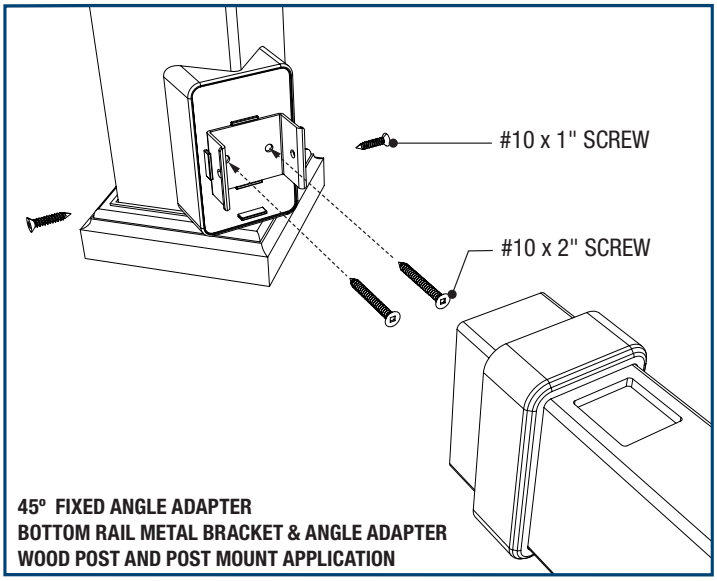


45° FIXED ANGLE ADAPTER WOOD POST AND POST MOUNT APPLICATION





22.5° FIXED ANGLE BOTTOM RAIL METAL BRACKET AND ANGLE ADAPTER WOOD POST APPLICATION ONLY



45° FIXED ANGLE ADAPTER BOTTOM RAIL METAL BRACKET & ANGLE ADAPTER WOOD POST AND POST MOUNT APPLICATION

22.5° Fixed Angle Adapter Instructions for Post Mount Applications Only (see page 11 for Wood Post Applications)

Installation Steps:

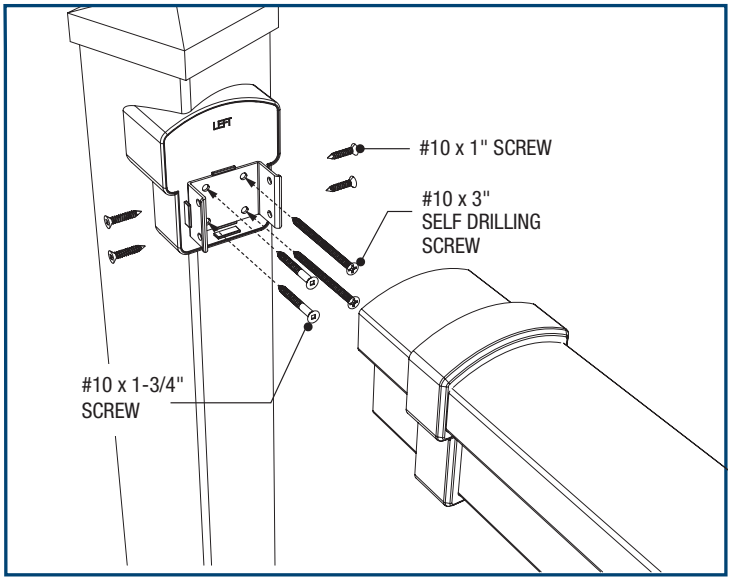
1. Install and prepare all the mounting surfaces and posts to which the Railing will be installed. Ensure the mounting surface is level and plumb.
2. Measure and mark the post 6" above the deck surface.
3. Position the bottom rail angle adapter on the post so that the top of the adapter is 6" above the deck surface. Place the bottom rail metal bracket (marked "B") included in Railing kits onto the face of the bottom rail angle adapter.

NOTE: These installation instructions provide a 2" clearance between the deck surface and bottom rail.

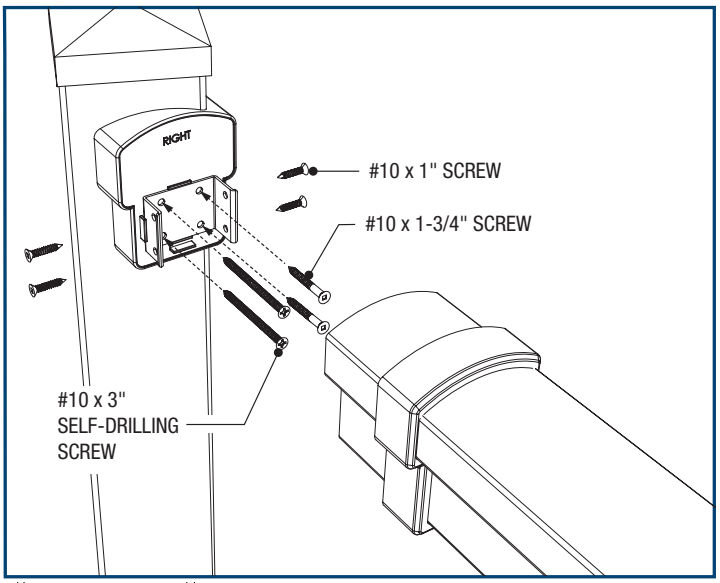
IMPORTANT: Be sure to check with your local building code officials for any bottom rail clearance or rail height requirements. Improper rail clearance or rail height could cause a safety hazard.

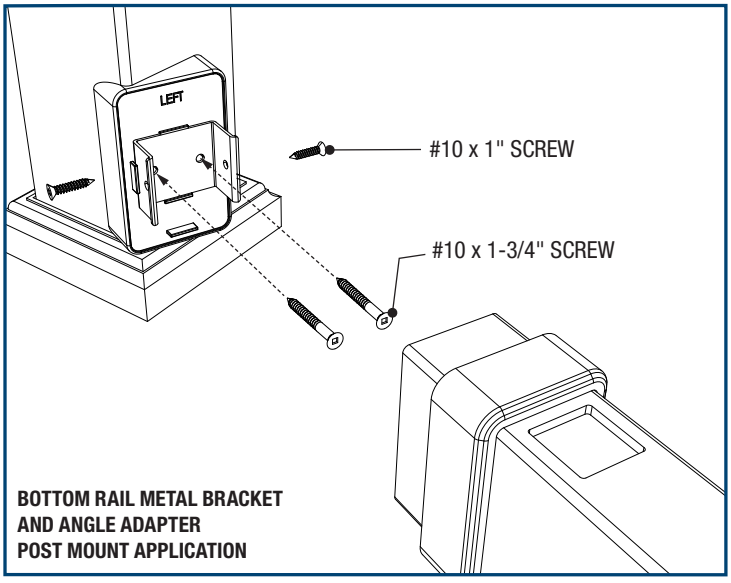
4. Install the bottom rail metal bracket and the angle adapter to the post using two of the supplied 1-3/4" screws. Ensure the angle adapters are installed evenly and flush to the post corners.
5. For 36" height rail systems, measure 36-1/2" above the deck surface and mark post. For 42" height rail systems, measure 42-1/2" above the top of the deck surface and mark post.
6. Position the top rail angle adapter on the post so that the top of the adapter is aligned with the mark. Place the top rail metal bracket (marked "T") included in Railing kit onto the face of the top rail angle adapter.
7. Install the top rail metal bracket and the angle adapter to the post as illustrated and according to the instructions:
   a. When installing a "LEFT" top rail angle adapter, install two of the supplied 1-3/4" screws through the left-side holes of the metal bracket and the angle adapter. Install two of the supplied 3" self-drilling screws through the right-side holes and into the metal post.
   b. When installing a "RIGHT" top rail angle adapter, install two of the supplied 1-3/4" screws through the right-side holes of the metal bracket and the angle adapter. Install two of the supplied 3" self-drilling screws through the left-side holes and into the metal post.

22.5° LEFT FIXED ANGLE ADAPTER; POST MOUNT APPLICATION ONLY

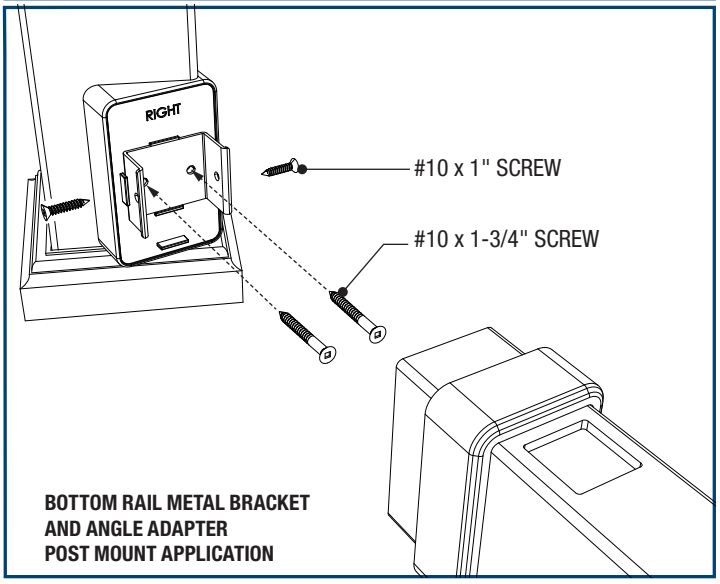


22.5° RIGHT FIXED ANGLE ADAPTER; POST MOUNT APPLICATION ONLY





BOTTOM RAIL METAL BRACKET AND ANGLE ADAPTER POST MOUNT APPLICATION



BOTTOM RAIL METAL BRACKET AND ANGLE ADAPTER POST MOUNT APPLICATION

FIXED ANGLE ADAPTER INSTALLATION Straight Rail Kit Between Posts

Accommodates 45° and 22.5° horizontal angle applications for attaching Straight Rail Kits to a Post Mount System, or wood post covered by a Post Sleeve

INSTRUCTIONS FOR INSTALLING STRAIGHT RAIL KIT BETWEEN POSTS WITH THE PREINSTALLED 22.5° OR 45° ANGLE ADAPTERS:

1. Measure the opening between the bottom rail metal brackets. Mark the length on the bottom rail, ensuring that the Balusters will be evenly spaced between the posts.

   IMPORTANT: A minimum of 1-7/8" rail length is required from the end of rail to the first Baluster on both ends of the rail. Check the end spacing and shift the position of the rail before cutting if required. Ensure that the gap between the posts and the Balusters will not exceed 4".

2. When marked properly, cut the bottom rail.

   Refer back to the Straight Rail Installation Instructions on page 2 for installing Straight Rail Kits.

INSTRUCTIONS FOR INSTALLING STRAIGHT RAIL KIT BETWEEN A POST WITH THE PREINSTALLED 22.5° OR 45° ANGLE ADAPTERS AND A FLAT POST SURFACE

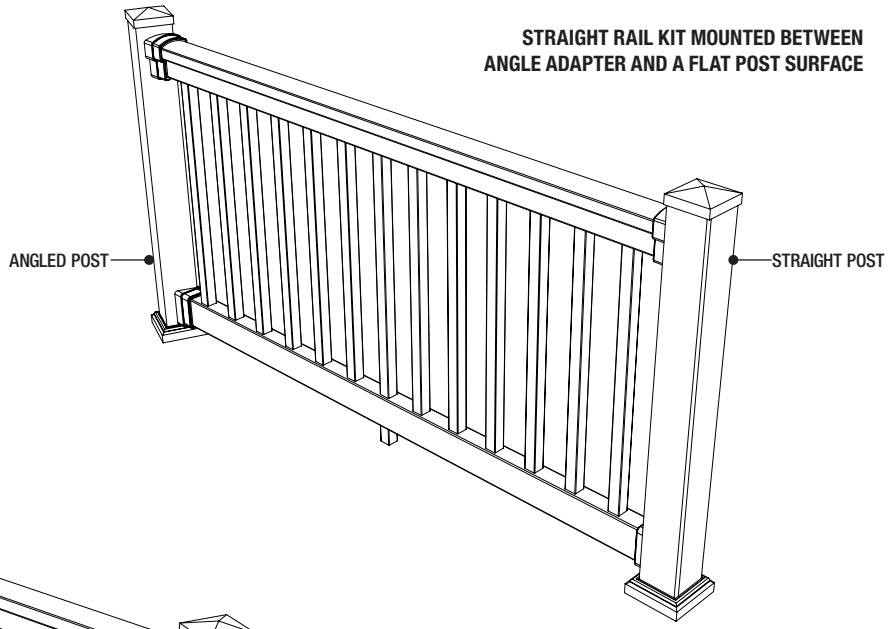
1. Use the bracket placement template on the box of the Straight Rail Kit to position the top and the bottom metal brackets on the flat post surface.
2. Secure the metal brackets to the flat post surface using six screws, affixing four to the top and two to the bottom. Use the 2" screws included in the Straight Rail Kits for mounting to a wood post, or the 1" screws included in Post Mount Kit when mounting to the Post Mount System.
3. Measure the opening between the bottom rail metal brackets.

   Mark the length on the bottom rail, ensuring that the Balusters will be evenly spaced.

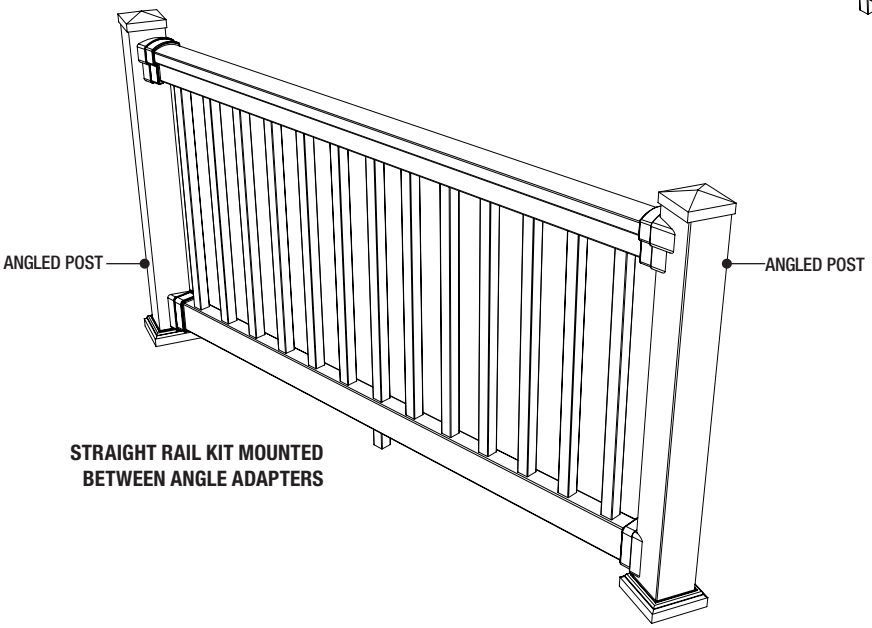
   IMPORTANT: A minimum of 1-7/8" rail length is required from the end of rail to first baluster on both ends of the rail. Check end spacing and shift the position of the rail before cutting if required. Ensure that the gap between posts and balusters will not exceed 4".

4. When marked properly, cut the bottom rail.

   Refer back to the Straight Rail Installation Instructions on page 2 for installing Straight Rail Kits.



STRAIGHT RAIL KIT MOUNTED BETWEEN ANGLE ADAPTER AND A FLAT POST SURFACE



STRAIGHT RAIL KIT MOUNTED BETWEEN ANGLE ADAPTERS

FAIRWAY RAILING™

BY Envision® OUTDOOR LIVING PRODUCTS

It is the responsibility of the installer to meet all building code and safety requirements and to obtain all required building permits. For Traditional Composite code compliance information, see CCRR-0118. Envision Outdoor Living Products LLC shall not be held liable for improper or unsafe installations. These application instructions were current at the time of printing. To obtain a copy of the most current version of the application instructions or of CCRR-0118, visit us online at EnvisionOutdoorLiving.com or call us at 1-800-598-5245.

Envision™ OUTDOOR LIVING PRODUCTS

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