

Advantage Rail™

TimberTech®
RAILING

Round Baluster Installation Guide



Level Sections	2
Stair Sections	17

Visit www.TimberTech.com/installation to view TimberTech installation videos.
Consult your local building codes for guard and handrail requirements.

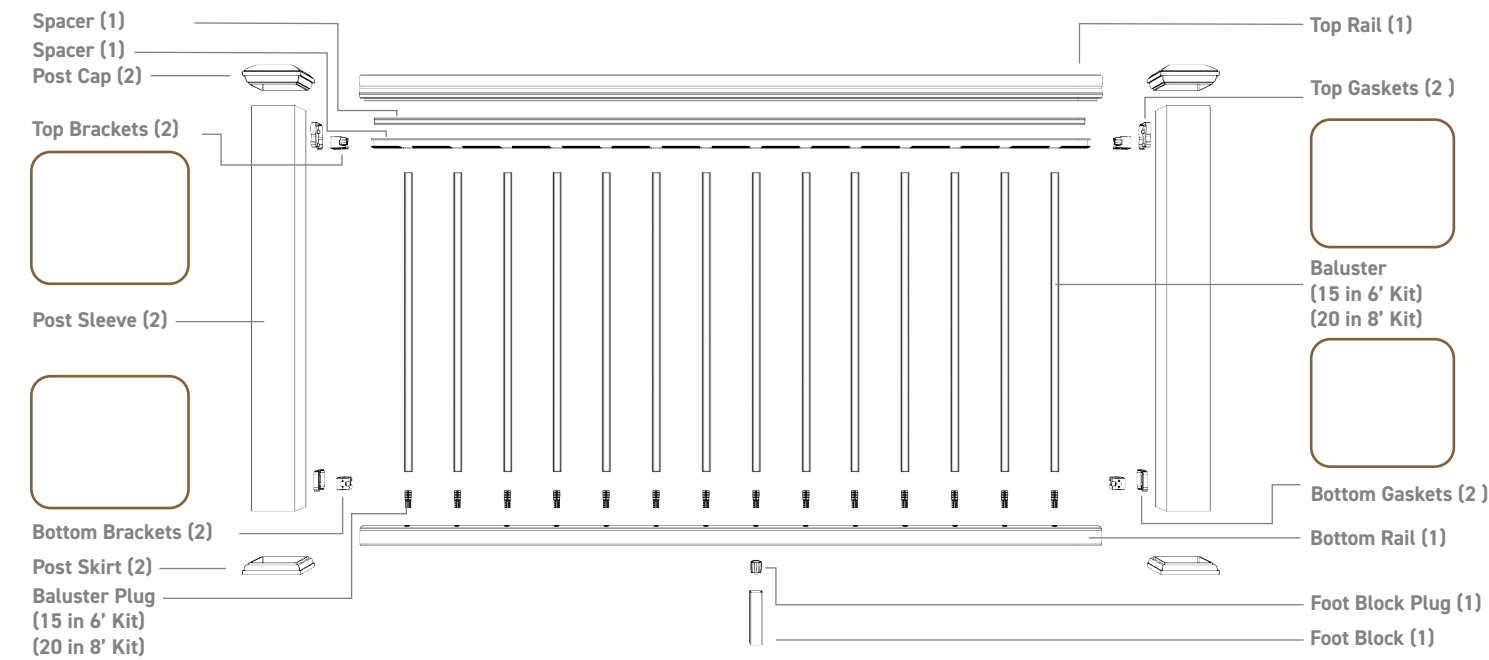


IMPORTANT INFORMATION

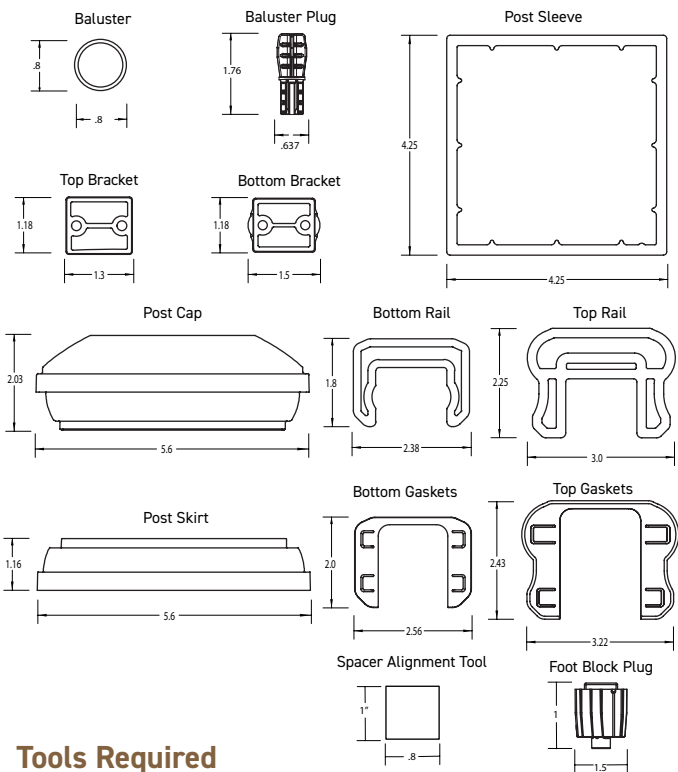
- Please read all instructions completely before starting any part of the installation. Always make sure to visit www.TimberTech.com to ensure you are viewing the most current installation instructions, care and cleaning, technical information, and more.
- Advantage Rail should be installed using the same good building principles used to install wood, composite, or metal railing and in accordance with the local building codes and the installation guidelines included below.
- AZEK Building Products LLC and its affiliates, successors, and assignees, accepts no liability or responsibility for the improper installation of this product.
- Advantage Rail may not be suitable for every application, and it is the sole responsibility of the installer to be sure that Advantage Rail is fit for the intended use. Since all installations are unique, it is also the installer's responsibility to determine specific requirements in regard to each rail application.
- AZEK Building Products LLC recommends that all applications be reviewed by a licensed architect, engineer, or local building official before installation. If you have any questions or need further assistance, please call TimberTech Customer Service at 877-275-2935, or visit our website at www.TimberTech.com.
- Advantage Rail is tested as a whole system and should be used that way. It is not intended to be used in conjunction with other railing systems or fasteners.
- The following Installation Guidelines are applicable for installation of Advantage Rail only.
- **IMPORTANT:** Make sure the DRIVE TOOL/DRILL is configured or set to use the SCREW setting when driving and/or tightening all FASTENERS.
- Failure to install this product in accordance with applicable building codes and Advantage Rail written Rail Install Guide may lead to personal injury, affect rail system performance, and void the product warranty.
- The buildup or generation of static electricity is a naturally occurring phenomenon in many plastic based products such as carpeting, upholstery, and clothing, and can occur on alternative decking under certain environmental conditions. This static electricity can discharge once contact is made with hardware, railing, or other conductors of electricity.
- The diagrams and instructions in this brochure are for illustration purposes only and are not meant to replace a licensed professional. Any construction or use of the product must be in accordance with all local zoning and/or building codes. The consumer assumes all risks and liability associated with the construction or use of this product. The consumer or contractor should take all necessary steps to ensure the safety of everyone involved in the project, including, but not limited to, wearing the appropriate safety equipment. Except as contained in the written limited warranty, TimberTech does not provide any other warranty, either express or implied, and shall not be liable for any damages, including consequential damages.
- **SAFETY:** Always wear protective equipment, such as gloves and safety glasses, when working with tools and cutting materials.
- **LIMITED WARRANTY:** Damages or defects caused by failure to follow these instructions, local building codes, or improper installation are not covered by products warranties. Visit <https://www.TimberTech.com/about-warranties/> for full product warranty information.
- **LIABILITY:** It is the responsibility of the installer to meet all local code requirements and obtain all required building permits. The installer must ensure that the products are fit for the intended use and determine and implement appropriate installation techniques for each installation application; review applications with a licensed architect, engineer, or local building official before installation. AZEK Building Products LLC and its affiliates ("TimberTech") and their resellers are not responsible for improper installation, misuse, or failure to comply with safety regulations.
- **CUTTING:** If the rail needs to be cut to size, ensure accurate measurements. TimberTech is not responsible for any mistakes or damages caused by cutting.
- **PARTS:** DO NOT attempt to assemble rail if parts are missing or damaged.

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Parts Overview



Component Dimensions



Tools Required

- Pencil
- Tape Measure
- Level
- Soft Clamps
- Rubber Mallet
- Power Drill
(with 6" Minimum Driver Extension)
- Right angle adapter for drill
- 5/32" Drill Bit (6" long or hex drive)
- Chop Saw (w/Carbide tipped fine finish blade)
- Silicone
- Cutting Snips
- 1/2" Plywood (Stairs Only)
(6" wide, length to be cut between stair posts)

Components Needed For Installing
One Advantage Rail Section

Components included in Advantage Rail Kits	Level Rail Kits	Round Balusters Rail Kit
	Square Balusters Rail Kit 1 - Top Rail 1 - Bottom Rail 1 - Spacer Square Composite Balusters (14 in 6' Kits, 19 in 8' Kits) Baluster Plugs (14 in 6' Kits, 19 in 8' Kits) Foot Block & Plug (1 each in 6' Kits, 2 each in 8' Kits) Gaskets Mounting Hardware Template	Round Balusters Rail Kit 1 - Top Rail 1 - Bottom Rail 1 - Spacer + Insert Round Aluminum Balusters (15 in 6' Kits, 20 in 8' Kits) Baluster Plugs (15 in 6' Kits, 20 in 8' Kits) Foot Block & Plug (1 each in 6' Kits, 2 each in 8' Kits) Gaskets Mounting Hardware Template
Components included in Advantage Rail Kits	Stair Rail Kit	Round Balusters Rail Kit
	Square Balusters Rail Kit 1 - Top Rail 1 - Bottom Rail 1 - Spacer Square Composite Balusters (11 in 6' Kits, 14 in 8' Kits) Baluster Plugs (11 in 6' Kits, 14 in 8' Kits) Foot Block & Plug (1 each in 6' Kits, 2 each in 8' Kits) Gaskets Mounting Hardware Template	Round Balusters Rail Kit 1 - Top Rail 1 - Bottom Rail 1 - Spacer + Insert Round Aluminum Balusters (12 in 6' Kits, 16 in 8' Kits) Baluster Plugs (12 in 6' Kits, 16 in 8' Kits) Foot Block & Plug (1 each in 6' Kits, 2 each in 8' Kits) Gaskets Mounting Hardware Template
Hardware included in Hardware Mounting Kits:	Level Rail	Stair Rail
	4 - Mounting Brackets 8 - #10 x 3" Screws (A) 6 - #10 x 1.75" Screws (B) 2 - #8 x 1.75" Screws (C) T25 Driver Bit	5 - Mounting Brackets 8 - #10 x 3" Screws (A) 2 - #8 x 1.75" Screws (C) 3 - #10 x 1" Screws (D) 3 - #10 x 2.125" Screws (E) T25 Driver Bit
Additional Components Needed for Each System	Level Rail	Stair Rail
	2 - Post Sleeves 2 - Post Caps 2 - Post Skirts	



IMPORTANT NOTE:

- Prior to construction, check with your local regulatory agency for special code requirements in your area.
- Common railing height is 36" or 42".
- TimberTech Advantage Rail — 8' and 6' Rails are designed not to exceed 8' and 6' from inside of post to inside of post, using 4" posts, respectively.
- For all other applications, consult a design professional or a TimberTech Railing representative for more information.
- Posts must be installed plumb and level with each other. This is specifically critical for Over-the-Post applications.
- Read instructions completely to get an understanding of how the product goes together and how each piece affects the other.
- Not compatible with glass infill panels.
- 4x4 lumber posts or TimberTech Secure Mount Posts should be installed plumb.
- Cut slowly, using a fine tooth saw blade to avoid chipping.

Advantage Rail™ is available in 6' or 8' lengths.

Identifying Post Locations and Railing Section Lengths

When designing and laying out your railing project, you must take the following into consideration:

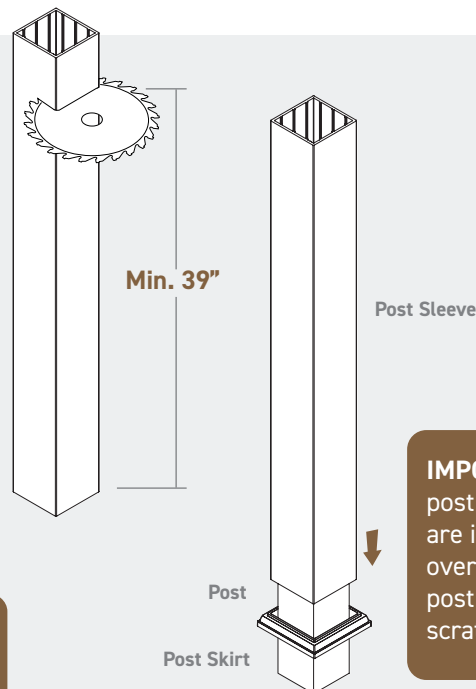
- Measurements are from inside of post to inside of post as noted in "Important Note" above. Rails are produced to 96" and 72", although it is common to trim down rail lengths to fit within 96" or 72" from center-of-post to center-of-post measurement. Maximum finished rail length must not exceed 96" for 8 ft. and 72" for 6 ft. from inside of post to inside of post. Please allow for finished end cuts and angles when selecting rail length.
- Determine how many 6' or 8' Advantage Rail sections you need and check to be sure you have all the components (and quantities) listed in the chart on page 2.

1

INSTALL POST SLEEVES AND POST SKIRTS

- If using post skirts, slide skirt over wood post first, then place sleeve over wood post. Insert sleeve into skirt at the base of the post
- Shim the post sleeve to the wood post. Ensure the posts and sleeves are square and plumb
- Measure space between posts sleeves to detect misalignment and correct if needed. Use level, measure twice, and record final distance for next step

Note: Rail bracket template used in step 4 is only compatible with TimberTech post skirt and sleeves



IMPORTANT: Be sure to install post skirts before railing sections are installed. Installing post skirt over the post prior to sliding on post sleeve can reduce potential for scratches



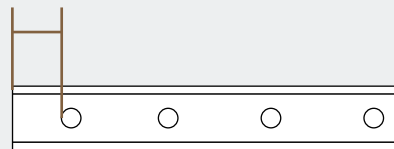
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MEASURE AND CUT BOTTOM RAIL

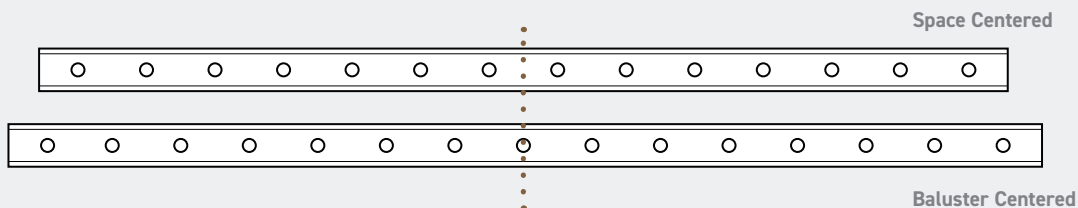
- Confirm distance measurement between posts at bottom bracket height (approximately 4" from deck surface)
- Layout and mark bottom rail so that baluster holes are equally spaced on each end
- Check that there is at least 1 7/8" from the edge of the hole to the end of the rail — if there is less than that distance, shift the rail so there is one fewer hole and repeat step 2. (This ensures the end baluster will clear the top rail mounting bracket.)
- If using gaskets, an additional 1/16" should be removed from each end of the rail
- Cut rail at final marked location on each end



≥ 1 7/8"



Determine whether the rail will be cut with a hole or Baluster in the center. Note: the maximum distance between baluster or between baluster and post should not exceed 4".



3

ATTACH TEMPLATE TO FIRST POST

- Cut and fold template based on post sleeve size and skirt size used (example in Fig. 5-1 below is 4"x4" post with skirt. (Advantage Rail system is also compatible with 5" and 5.5" composite post sleeves)
- Hold template to post with bottom edge against top of skirt (or deck surface if not using skirt)
- Fold back four tabs (upper and lower) corresponding to post sleeve size to center the template
- Use soft clamp to secure template flush against the post — ensure access to bracket cut outs on template

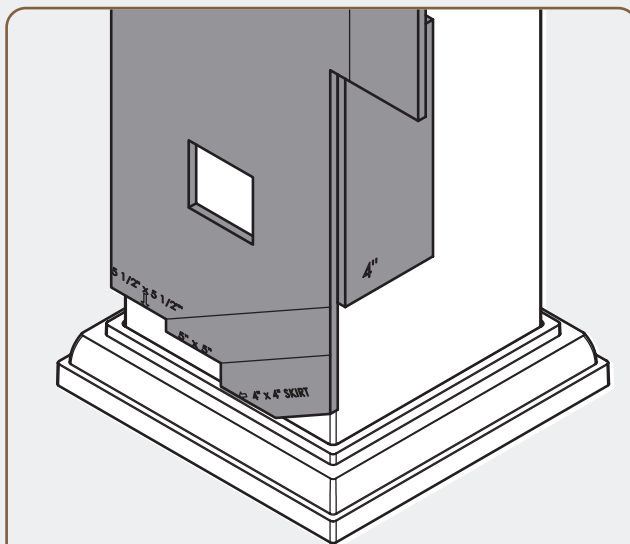
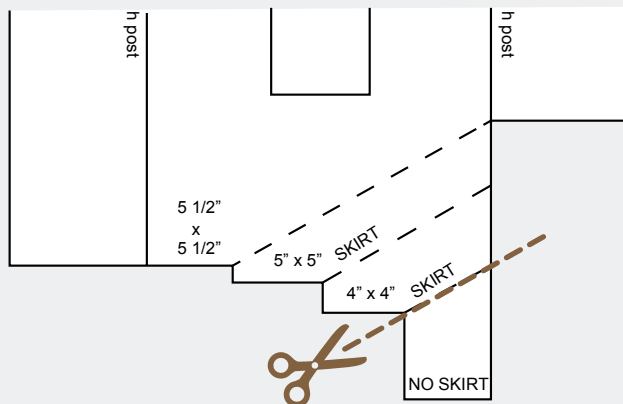
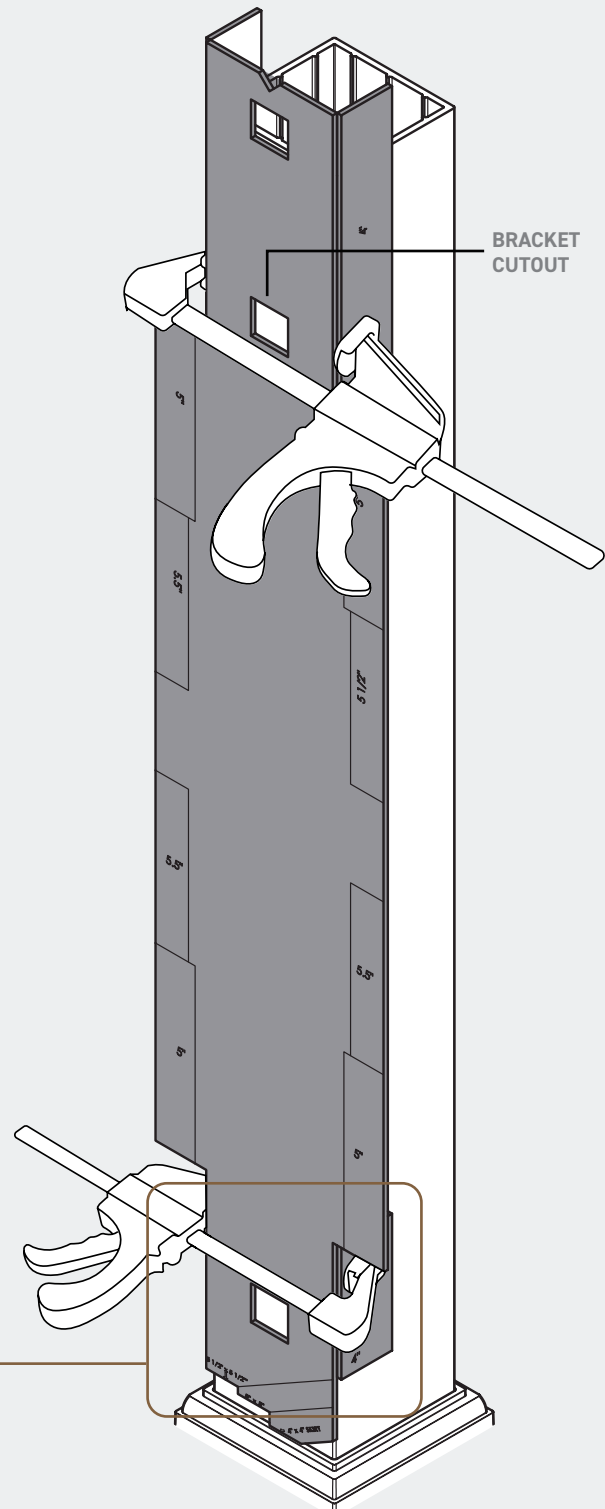


Fig. 5-1 - Template shown on a 4"x4" post

Note: The middle bracket cutout is for 36" height and top cutout is for 42" height rail

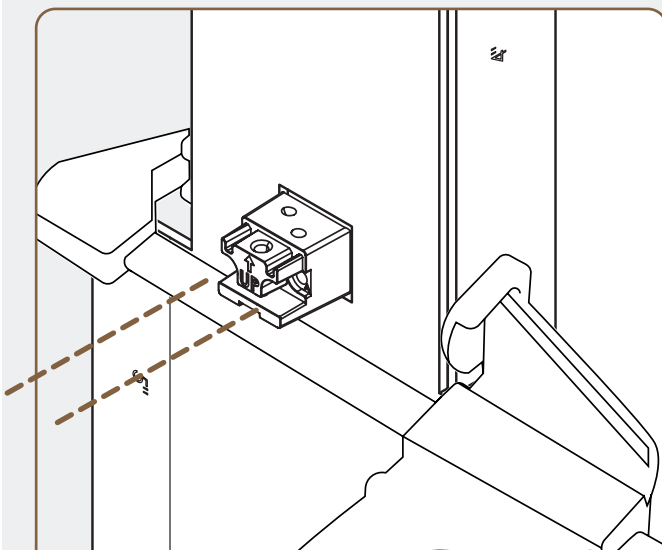


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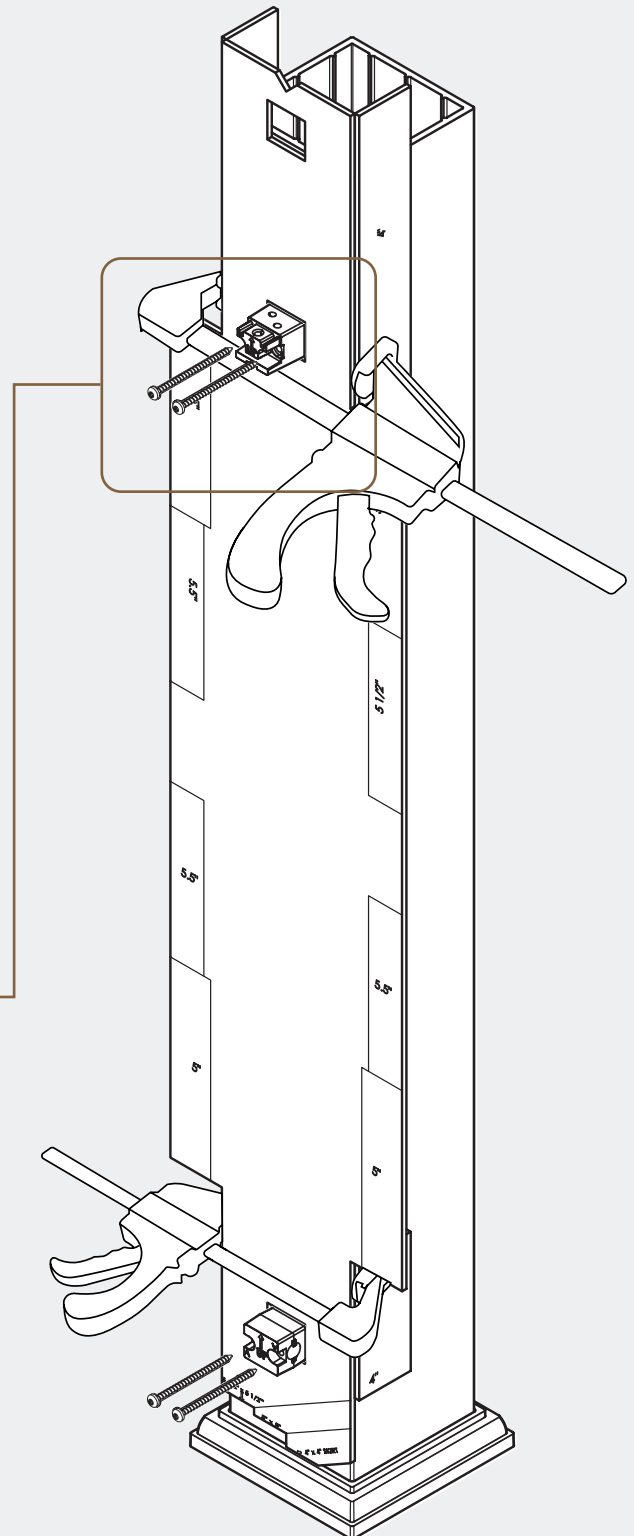
INSTALL BRACKETS ON POSTS

- Place top and bottom bracket into cutouts, ensuring right side up (brackets have indicators for orientation)
- Pre-drill post sleeves only (not into wood post) with 5/32" bit using brackets as drill guide
- Drive 3" #10 screws (A) through brackets until fully seated — ensure screws are driven evenly and do not overdrive
- Move template to second post, attach as described in previous step, and repeat step 4, bullets 1-3 above

Note: Bottom bracket is gray; top bracket is color matched to railing



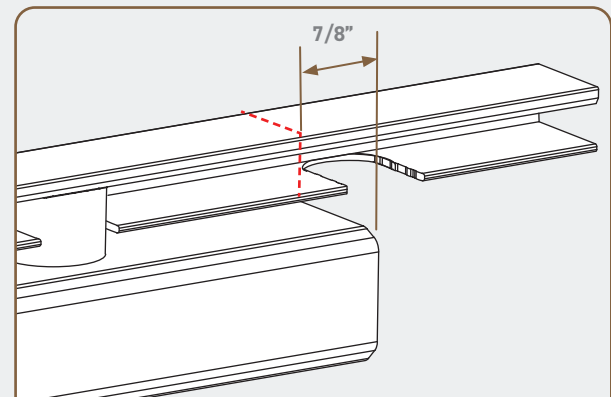
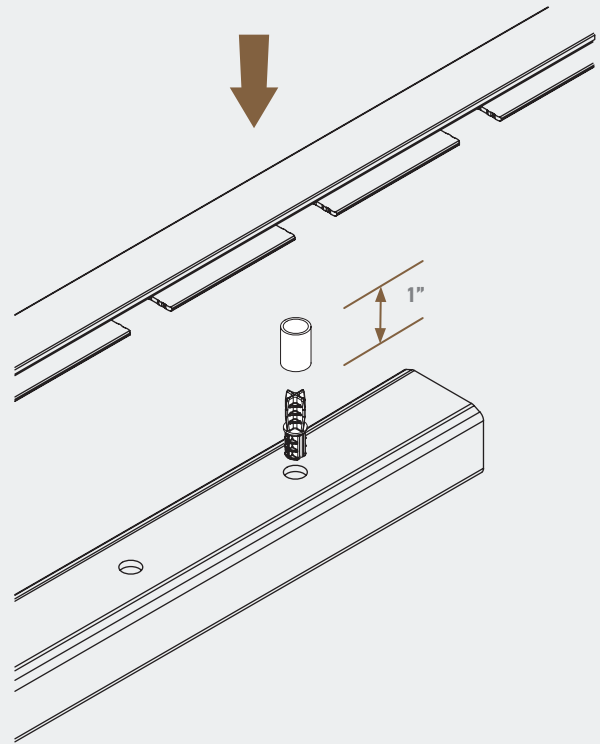
Pre-drill post sleeves only with 5/32" bit using bracket as guide



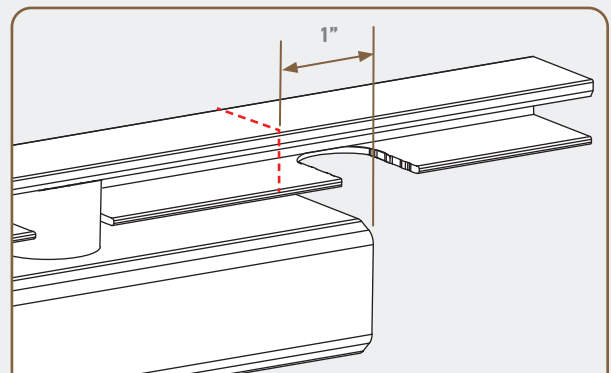
5

CUT SPACER & SPACER INSERT TO LENGTH

- Install baluster plugs in top side holes farthest from the center on each end of the bottom rail
- Locate 2 spacer alignment tools — these are 1" long pieces of baluster provided in the rail kit to align the spacer with the bottom rail
- Install 1" spacer alignment tool on top of plugs
- Snap spacer onto covered plugs above bottom rail and ensure baluster pieces are fully seated past the lip on the edge of the spacer and that the spacer is level with bottom rail
- Measure and mark spacer:
 - If USING gaskets — measure 7/8" offset from each end of bottom rail and mark on spacer
 - If NOT using gaskets — measure 1" offset from each end of the bottom rail and mark on Spacer
- Remove spacer from bottom rail
- Cut spacer to length — cut to marked length with baluster openings facing you and spacer U-shape opening facing up to make cut; alternatively use snips or shears to make cut
- Test fit onto top brackets and cut further if needed
- Align spacer insert with cutouts on spacer and measure 5/8" shorter than the spacer length on each end. Cut spacer insert to measured length.



Measure 7/8" if using gaskets



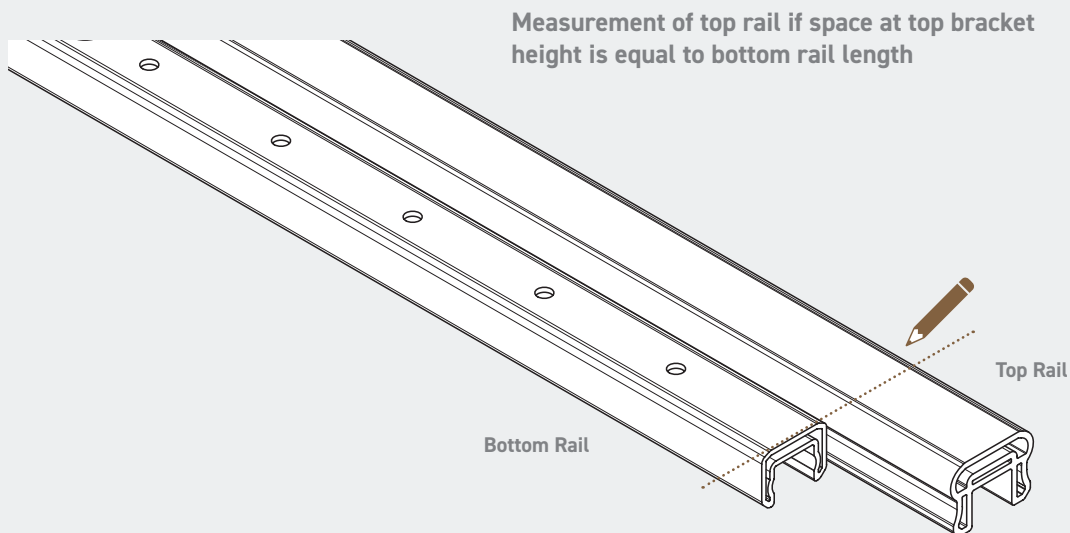
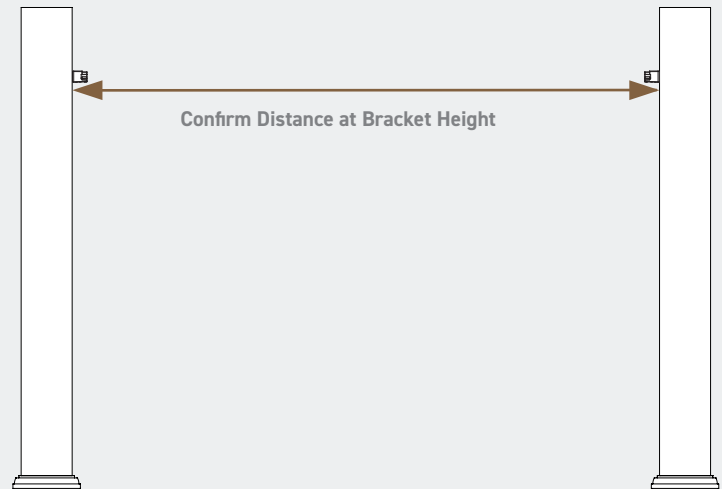
Measure 1" if not using gaskets

Note: 7/8" offset for gaskets
1" offset for NO gaskets

6

CUT TOP RAIL TO LENGTH

- Mark top rail length. Next lay top rail next to bottom rail to mark the same length
- Measure the post-to-post distance—do this at the 2 top bracket heights and confirm it matches the marked distance on top rail (If mismatched, adjust cut length to fit span as needed)
- If USING gaskets overall length should be approximately 1/8" less than measured distance
- Cut top rail to length
- Test fit top rail over top brackets to ensure proper fit



7

INSTALL FOOT BLOCK PLUGS (IF NEEDED)

- Installations greater than 36" require foot block(s) with plug(s):
 - One foot block — for installations greater than 36" long and less than 72" long
 - Two foot blocks — for installations greater than 72" long
- Locate position(s) on bottom rail — foot blocks should be evenly spaced through the rail span depending on how many are necessary and they should either be space-centered (centered between two holes) or baluster-centered (under a hole)
- If baluster-centered (Fig. 9-1): install baluster plug by pushing into hole on the top side of the rail, then place foot block plug on bottom side of rail and mount in place with 1.75" #10 screw (B)

Hold baluster plug in place with pliers, gripping the plug gently when driving screw

Drive screw until it seats — DO NOT over tighten screw as plastic will strip

- If space-centered (Fig. 9-2): mark desired location, pre-drill with 5/32" bit through first wall of bottom rail and do not overdrive into outer wall. Then install foot block plug by driving 1.75" #10 screw (B) until it is fully seated

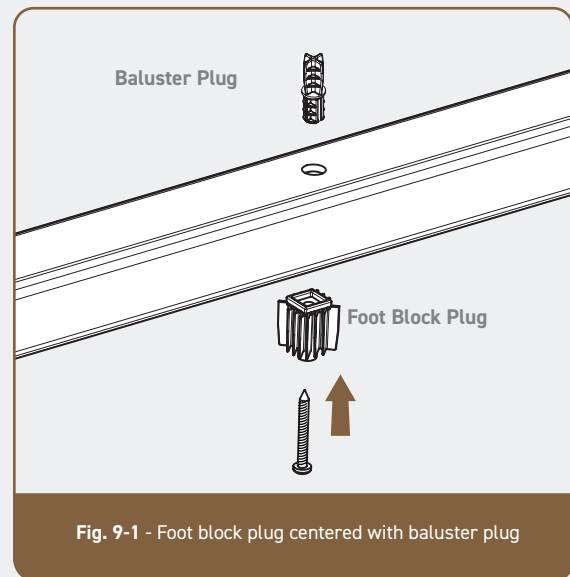
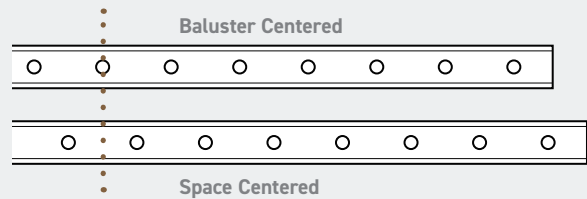


Fig. 9-1 - Foot block plug centered with baluster plug

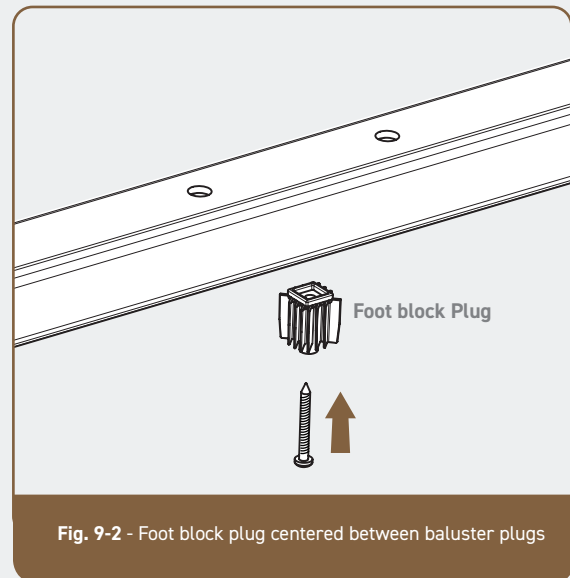
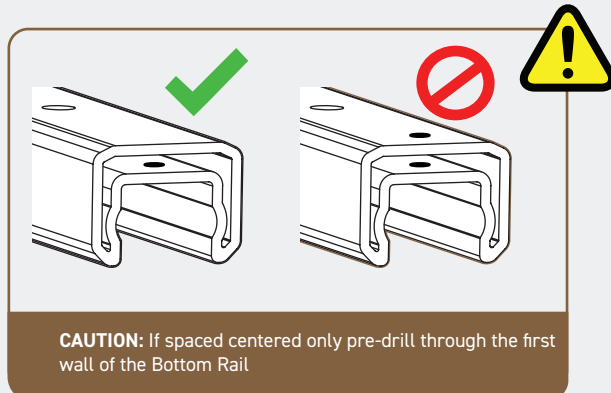


Fig. 9-2 - Foot block plug centered between baluster plugs



CAUTION: If spaced centered only pre-drill through the first wall of the Bottom Rail

8

INSTALL BOTTOM RAIL AND FOOT BLOCKS ONTO BRACKETS

- IF USING GASKETS, install them over rail ends (Fig.10-1)
- IF USING FOOT BLOCK(s) place foot block(s) onto foot block plug(s) (Fig.10-2)
- Place bottom rail onto both bottom brackets — the bottom opening should be centered over brackets (it may rock slightly to one side or the other)
- Firmly press bottom rail onto bottom bracket until it snaps into place
- Ensure bottom rail is fully seated on bottom brackets at both ends
- IF USING gaskets check that they are properly seated

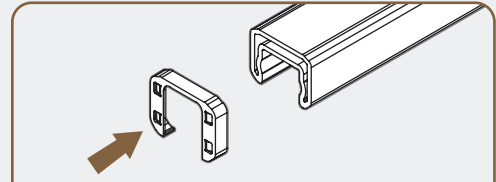


Fig.10-1 - Install gaskets over bottom rail ends

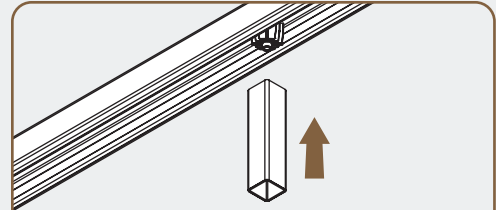
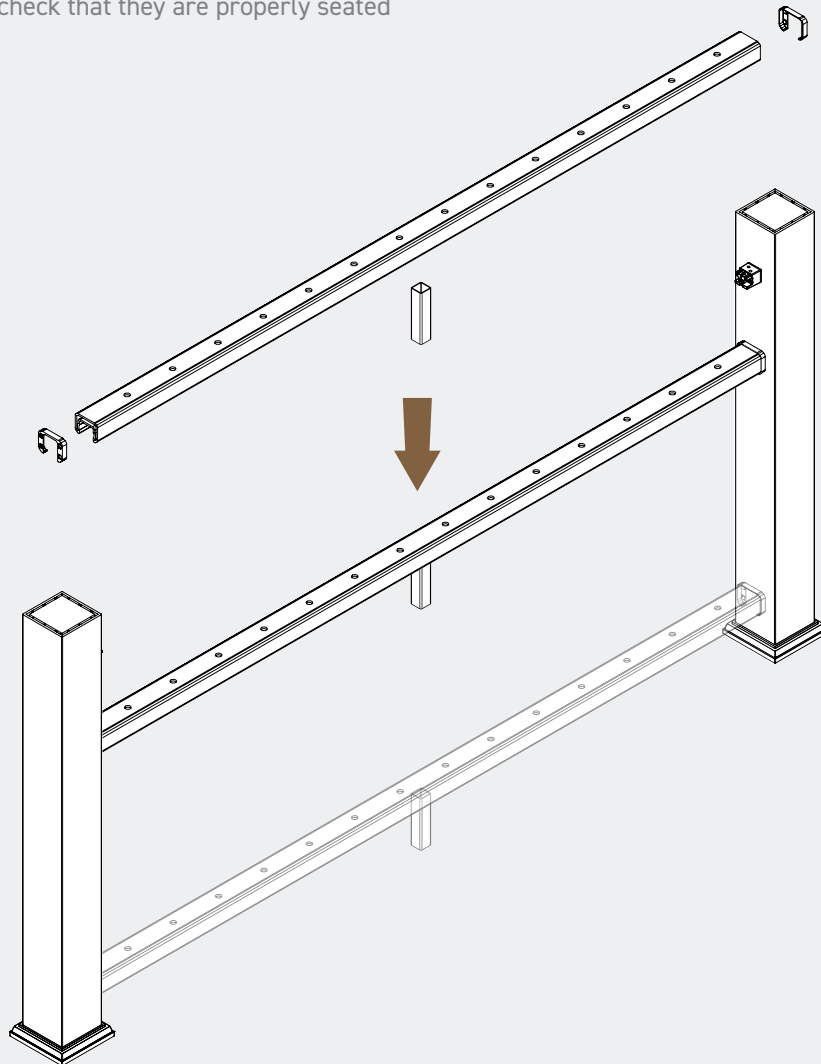


Fig.10-2 - Install foot block over foot block plug

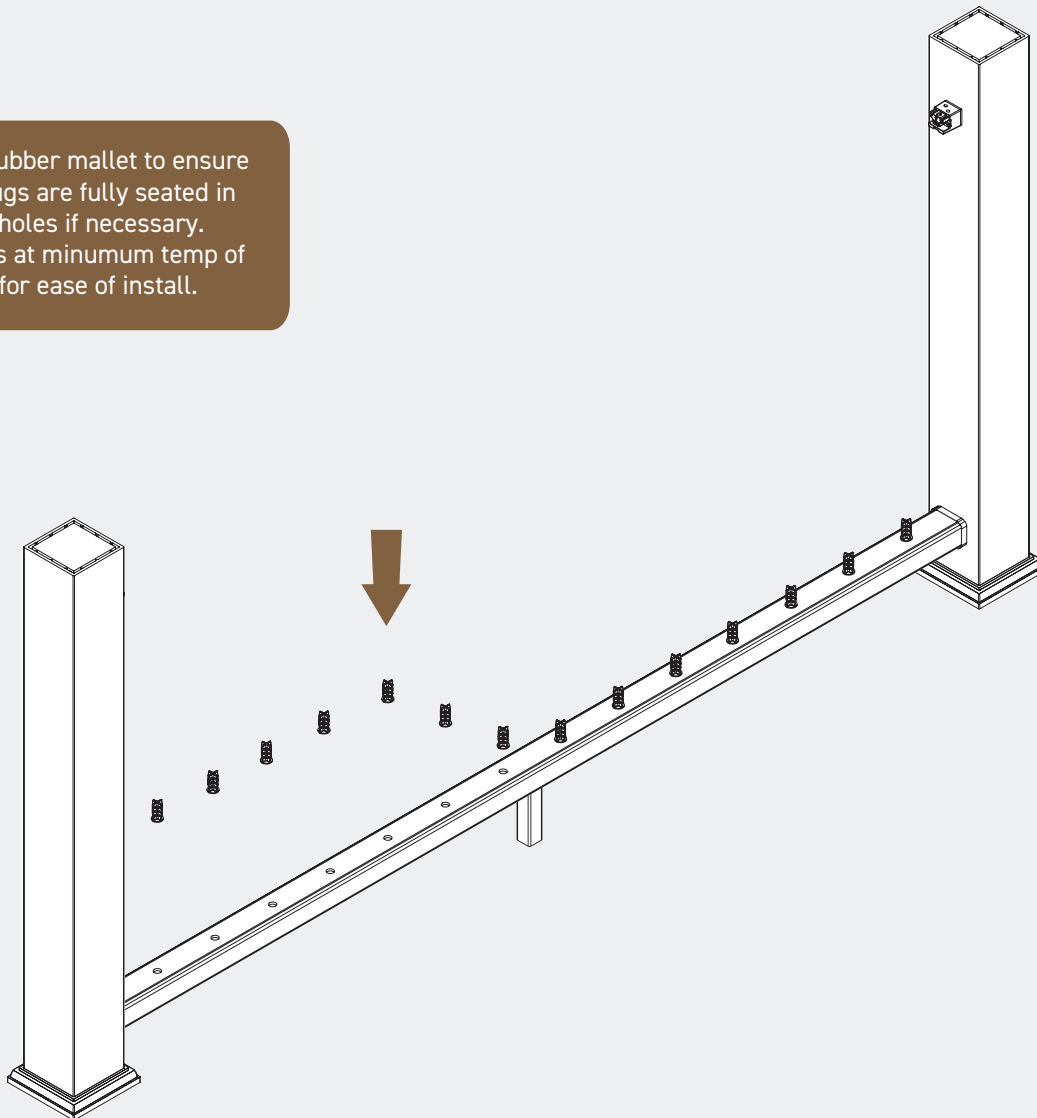


9

INSTALL BALUSTER PLUGS

- Press a baluster plug into each hole on the bottom rail
- To ensure plugs are fully seated within the hole in the bottom rail and that the circle at the lower end of the plug is flush with the bottom rail surface

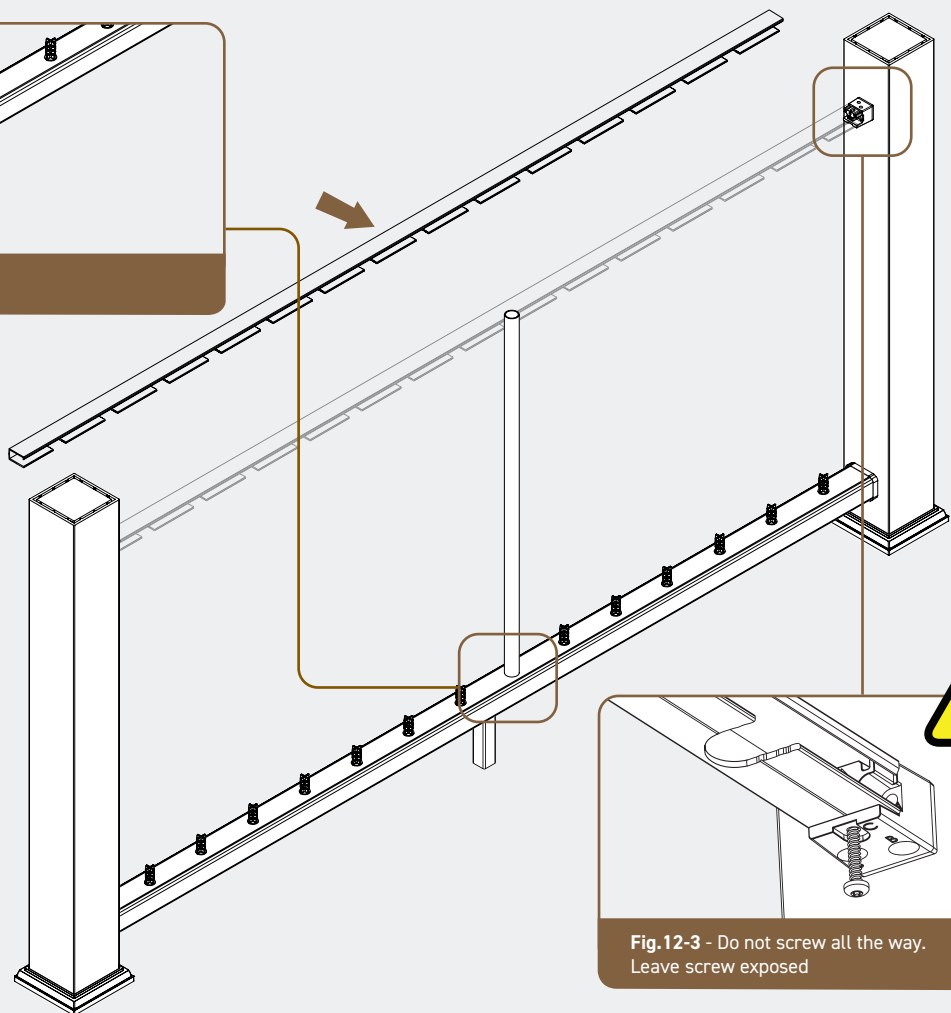
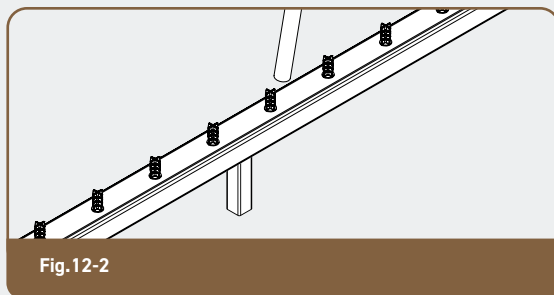
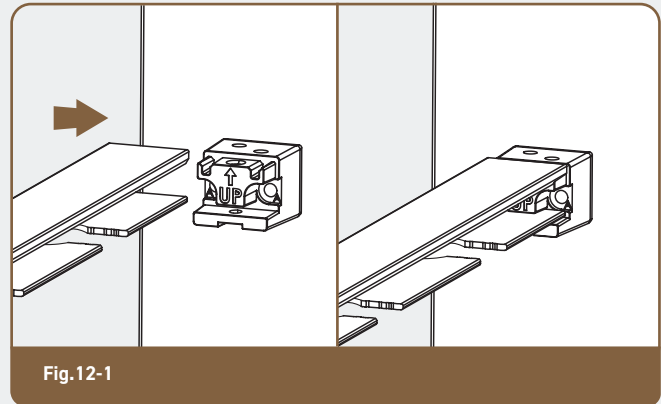
Note: Use rubber mallet to ensure baluster plugs are fully seated in bottom rail holes if necessary. Install plugs at minimum temp of 35 degrees for ease of install.



10

INSTALL SPACER

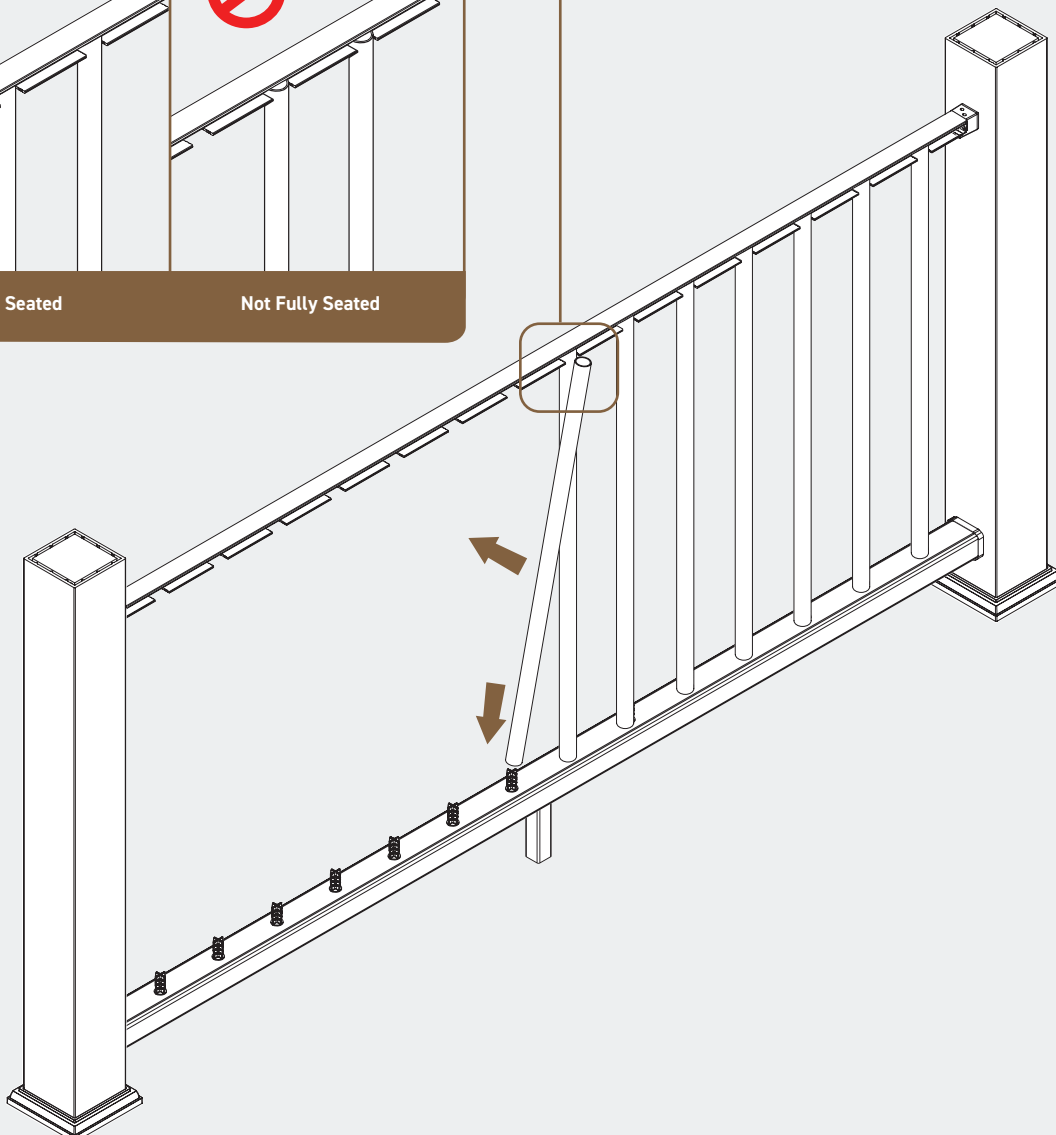
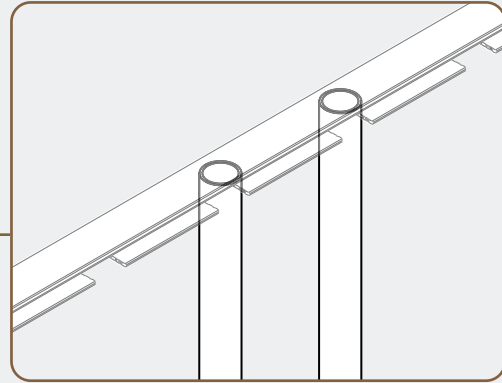
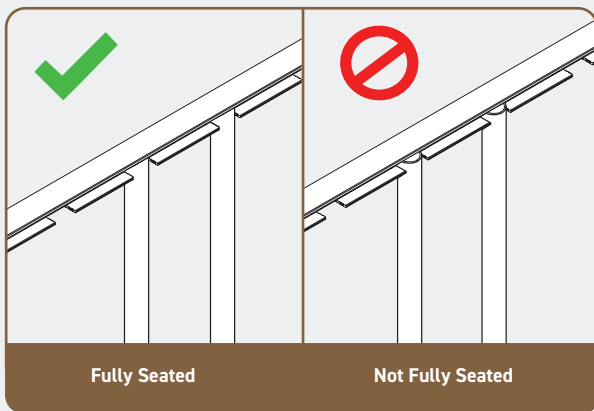
- Slide spacer onto top brackets with one face above the top of the nose and one going through the middle (Fig.12-1)
- Install one baluster onto baluster plug in center of system to center the spacer between both sides and to hold the spacer in place and prevent sagging while installing balusters (Fig.12-2)
- Double check fit and length of spacer – trim to adjust and ensure spacer is centered
- Drive #8 1.75" self-tapping screw (C) into hole under bracket – drill into bottom surface of spacer only, screw should stick out as in (Fig.12-3)
- Repeat screw attachment on opposite end of spacer



11

INSTALL BALUSTERS

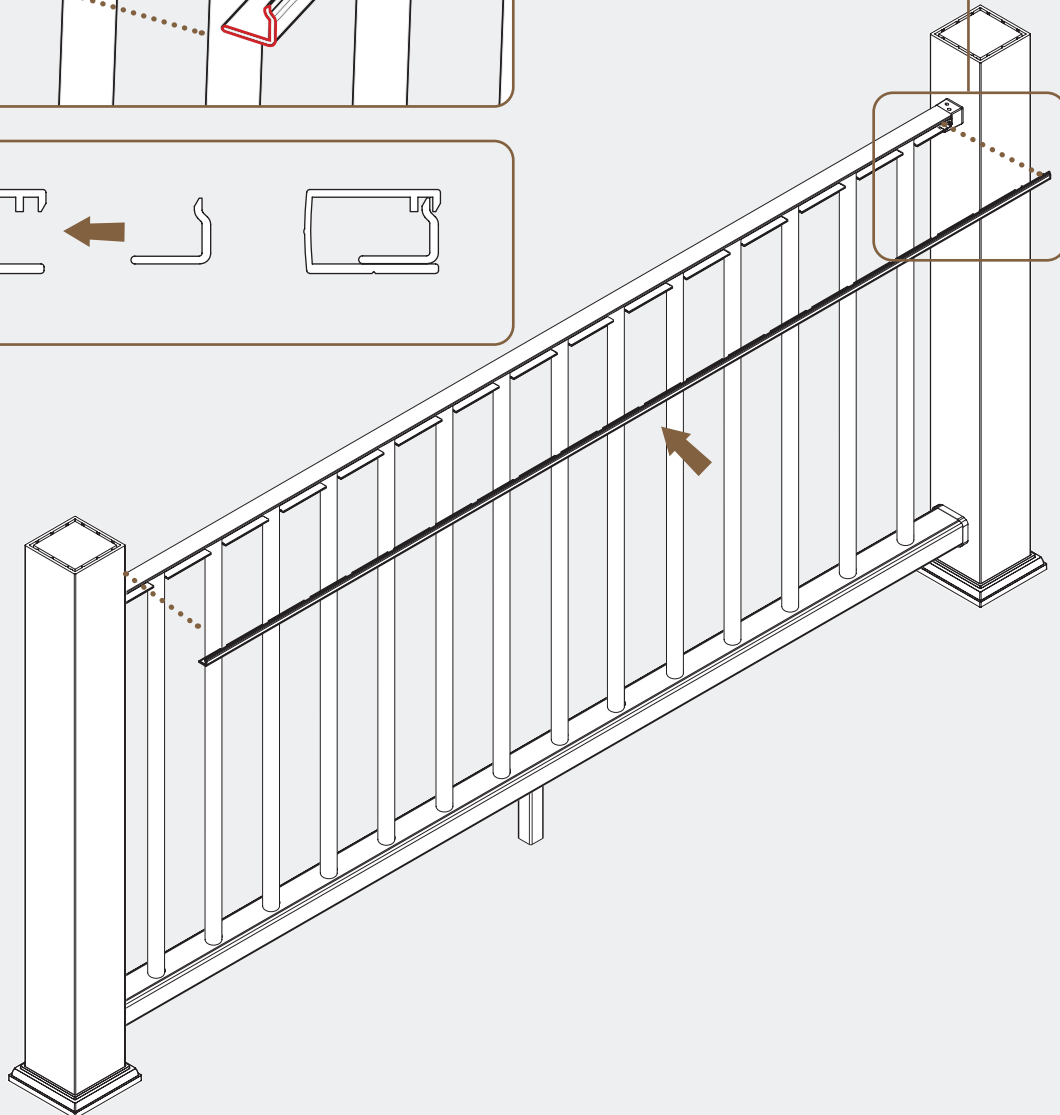
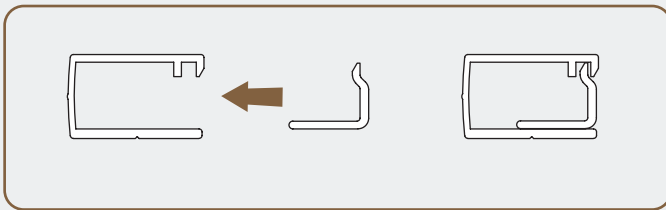
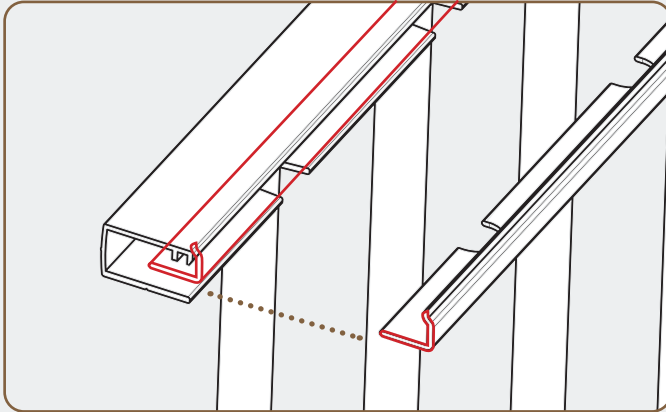
- Place bottom of baluster onto plug with top tipping out at an angle and push down
- Stand baluster up into spacer until it clicks; ensure baluster is fully inserted into spacer seating and pushed down onto plug in bottom rail (baluster should be flush with bottom rail)
- Repeat for all balusters



12

INSERT SPACER INSERT

- Align cutouts of spacer insert with balusters on deck side of rail and snap into spacer to secure baluster



13

INSTALL TOP RAIL

- IF USING GASKETS install over rail ends (Fig.15-1)
- Set top rail over spacer and top brackets — push down firmly into place over entire length of top rail, so that spacer and brackets are completely encased by top rail
- Finish driving #8 1.75" self-tapping screw (C) through the spacer, the bracket, and into the top rail on one end of top rail — use an extended length bit to avoid scratching post sleeve, and hold or clamp top rail in place (Fig. 8)
- Pre-drill (B) channels through bottom of bracket with 5/32" drill bit, recommend using extension to avoid damaging post sleeve, be careful to only drill through two layers and not through top of the rail
- Drive two #10 1.75" screws (B) (Fig.15-2) through angled holes of top bracket — use an extended length bit to avoid scratching post sleeve, and hold or clamp top rail in place (Fig. 8), and ensure that top rail is level and flush when driving
- Check that top brackets are flush with bottom of top rail; if not, reverse all screws slightly and tighten again, holding down rail to ensure it ends up flush
- Repeat (Fig.15-2) and (Fig.15-3) for bracket at opposite end of top rail

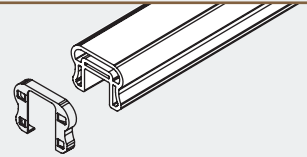


Fig.15-1 - Install gaskets over top rail ends

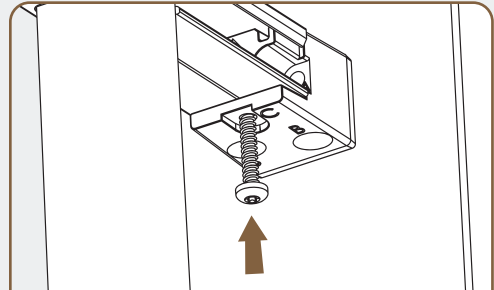


Fig.15-2 - Finishing driving #8 screw through spacer, bracket and into the top rail

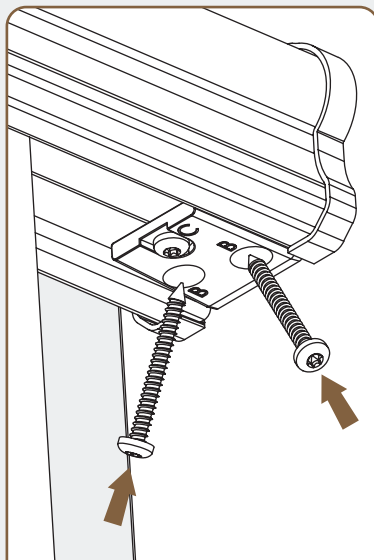
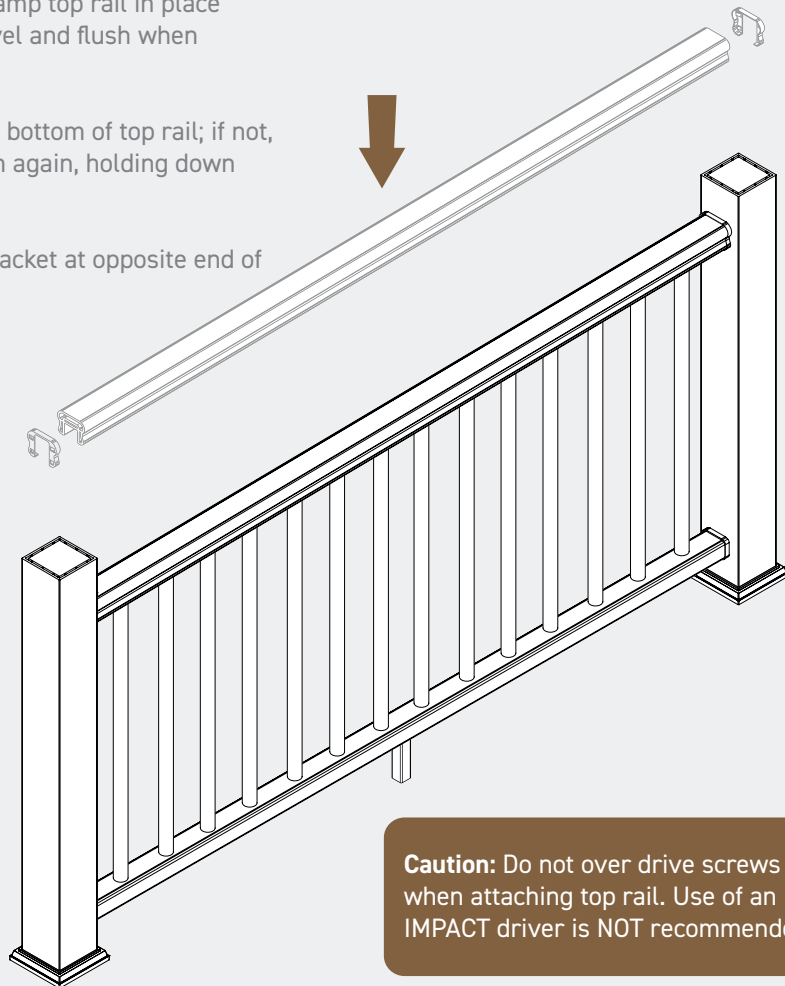


Fig.15-3 - Drive two #10 screws through angled holes in bracket

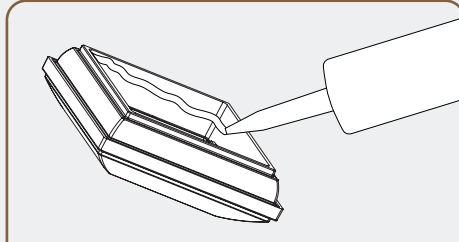
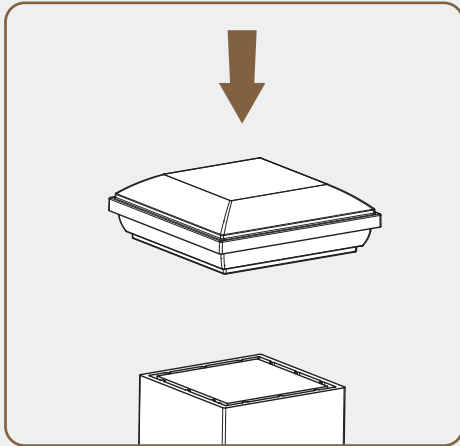


Caution: Do not over drive screws when attaching top rail. Use of an IMPACT driver is NOT recommended

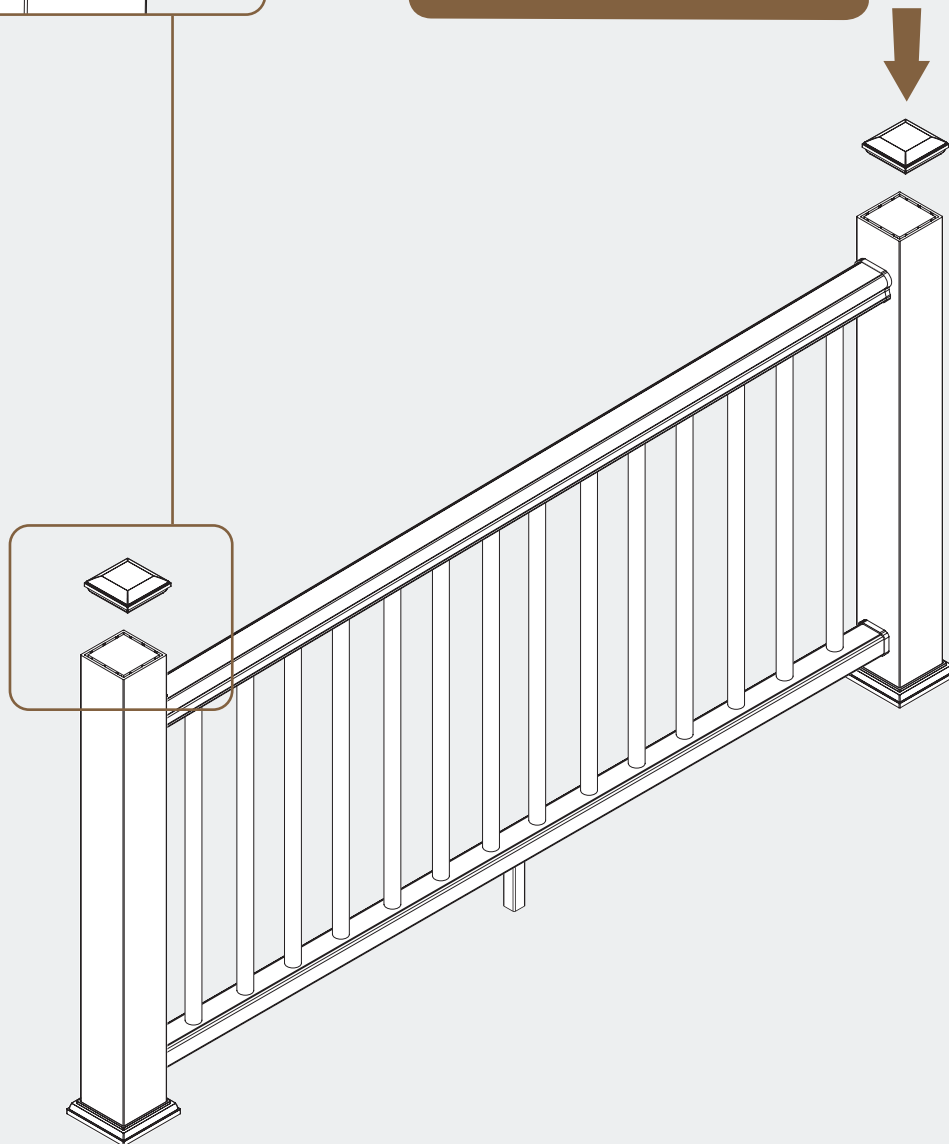


14

INSTALL POST CAPS



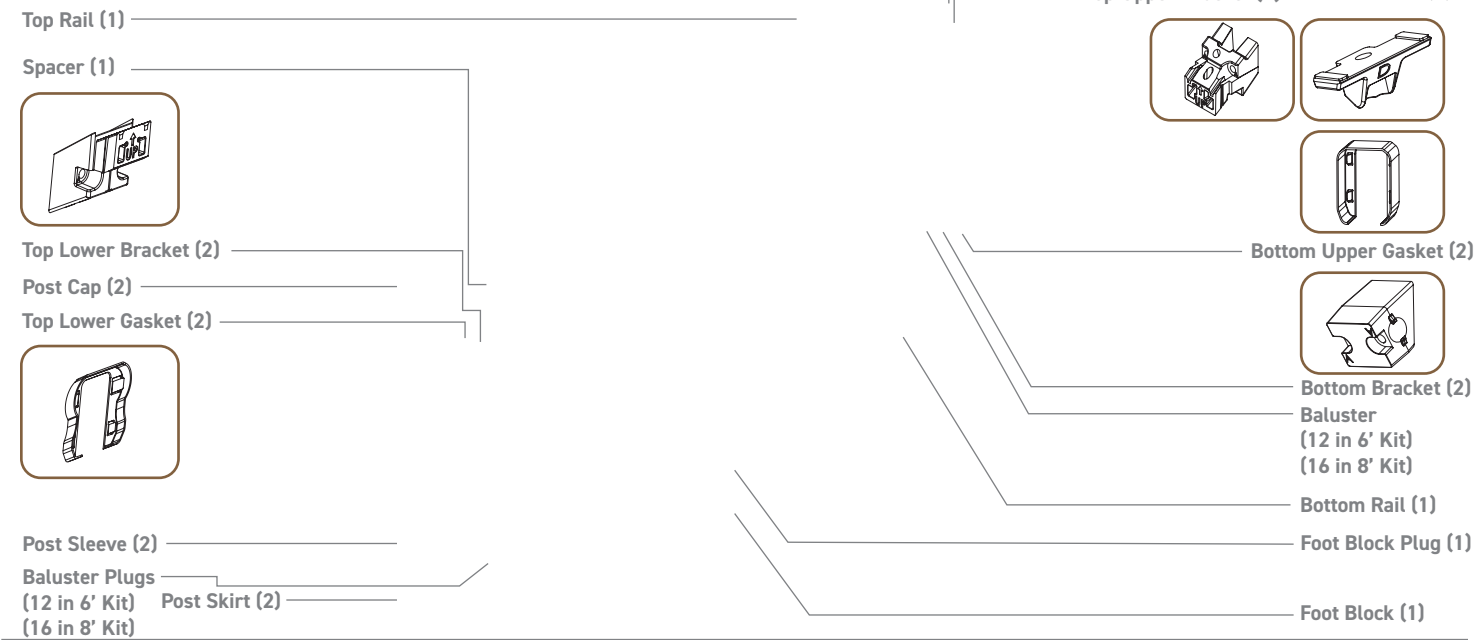
Installation Tips: Apply silicone inside of cap. Do not apply to post and then slide cap on. Do not add silicone to any other parts that it is not intended for



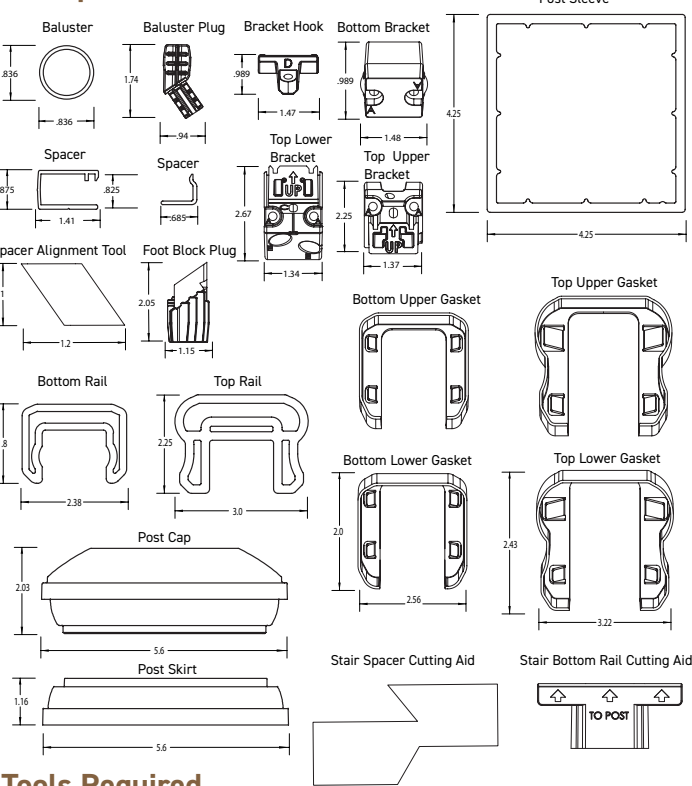
Advantage Rail™ Stair Railing System - Round Baluster



Parts Overview



Component Dimensions



Tools Required

- Pencil
- Tape Measure
- Level
- Soft Clamps
- Rubber Mallet
- Power Drill
 - (with 6" Minimum Driver Extension)
- Right angle adapter for drill
- 5/32" Drill Bit (6" long or hex drive)
- Chop Saw (w/Carbide tipped fine finish blade)
- Silicone
- Cutting Snips
- 1/2" Plywood (Stairs Only)
 - (6" wide, length to be cut between stair posts)

Components Needed For Installing One Advantage Rail Section

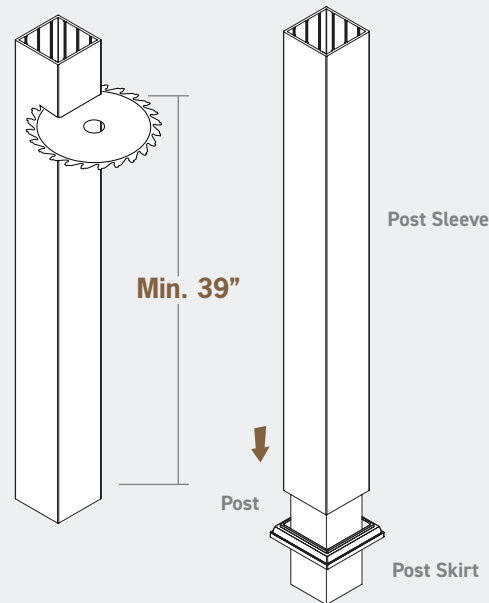
Components included in Advantage Rail Kits	Level Rail Kits	Round Balusters Rail Kit
	Square Balusters Rail Kit 1 - Top Rail 1 - Bottom Rail 1 - Spacer Square Composite Balusters (14 in 6' Kits, 19 in 8' Kits) Baluster Plugs (14 in 6' Kits, 19 in 8' Kits) Foot Block & Plug (1 each in 6' Kits, 2 each in 8' Kits) Gaskets Mounting Hardware Template	Round Balusters Rail Kit 1 - Top Rail 1 - Bottom Rail 1 - Spacer + Insert Round Aluminum Balusters (15 in 6' Kits, 20 in 8' Kits) Baluster Plugs (15 in 6' Kits, 20 in 8' Kits) Foot Block & Plug (1 each in 6' Kits, 2 each in 8' Kits) Gaskets Mounting Hardware Template
Hardware included in Hardware Mounting Kits:	Level Rail	Stair Rail
	4 - Mounting Brackets 8 - #10 x 3" Screws (A) 6 - #10 x 1.75" Screws (B) 2 - #8 x 1.75" Screws (C) T25 Driver Bit	5 - Mounting Brackets 8 - #10 x 3" Screws (A) 2 - #8 x 1.75" Screws (C) 3 - #10 x 1" Screws (D) 3 - #10 x 2.125" Screws (E) T25 Driver Bit
Additional Components Needed for Each System	2 - Post Sleeves 2 - Post Caps 2 - Post Skirts	

1

INSTALL POST SLEEVES AND POST SKIRTS

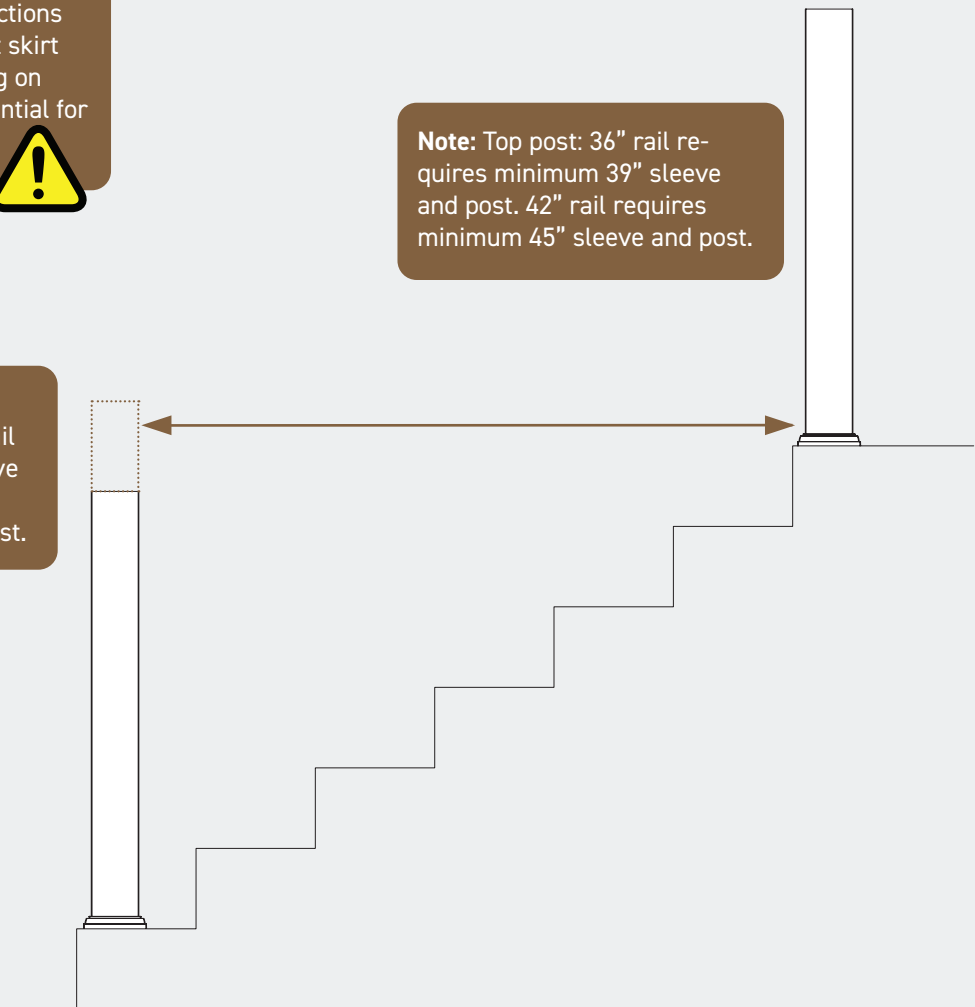
- Ensure posts are parallel and plumb prior to starting installation; posts must be plumb for system to fit properly
- If using post skirts, slide skirt over wood post first, then place sleeve over wood post — insert sleeve into skirt at the base of the post
- Shim the post sleeve to the post — ensure the posts are square and plumb
- Measure space between posts to detect misalignment and correct if needed — use level and measure twice

IMPORTANT: Be sure to install post skirts before railing sections are installed. Installing post skirt over the post prior to sliding on post sleeve can reduce potential for scratches.



Note: Top post: 36" rail requires minimum 39" sleeve and post. 42" rail requires minimum 45" sleeve and post.

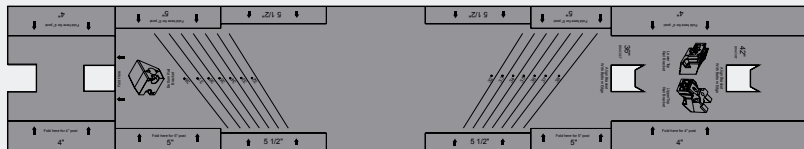
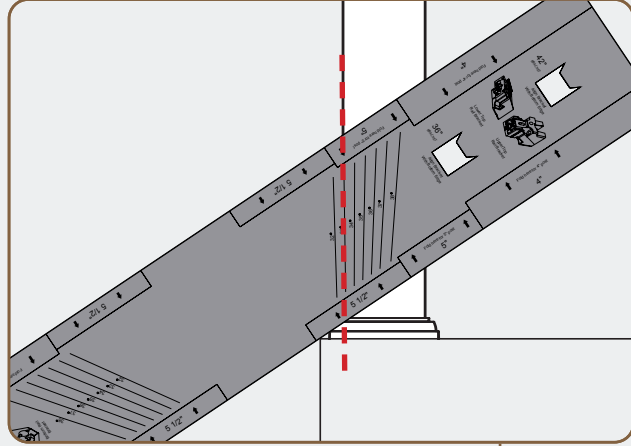
Note: Bottom Post must be longer than top post. 36" Rail requires minimum 45" sleeve and post. 42" Rail requires minimum 51" sleeve and post.



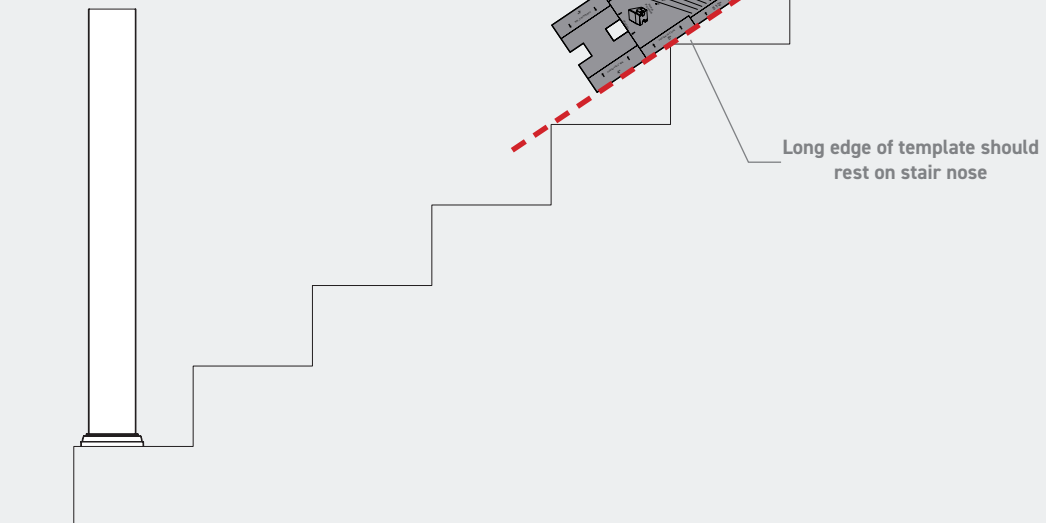
2

DETERMINE STAIR ANGLE

- Set leading edge of cardboard installation template on stair noses; ensure foldable pieces of template are intact and not yet folded out of plane when measuring stair angle
- Align stair angle lines to top post
- Determine which line most closely matches your stair angle
- Make a note of the angle and set your chop saw to the corresponding angle for all angled cuts; double-check angles and cuts prior to cutting all baluster and rails in case minor adjustment are needed for best fit



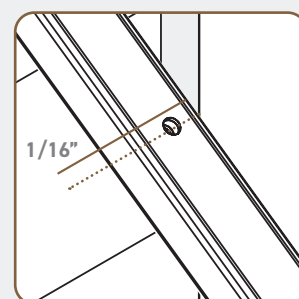
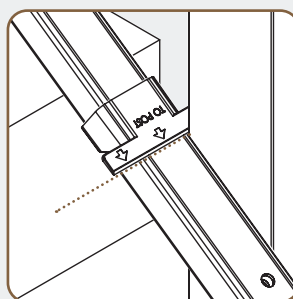
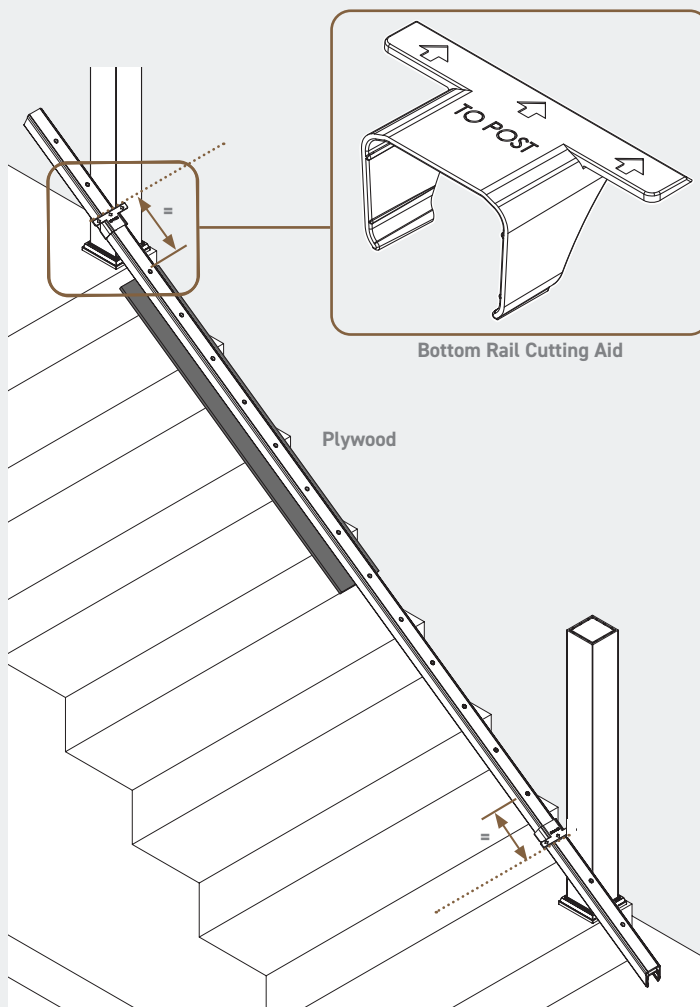
Note: Double-check upper and lower post sleeves to confirm angles are the same



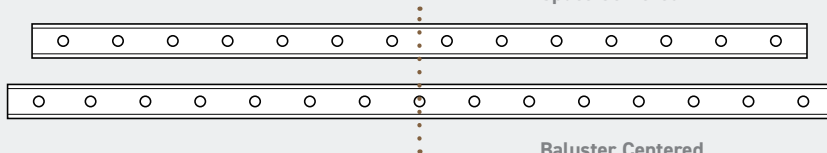
3

CUT BOTTOM RAIL

- Lay plywood board on nosing of stairs as a base. A 6" wide piece of ½" thick plywood is recommended that is cut to lay along stairs inside posts; if using different spacing of lower rail off stair nosing's ensure that a 6" sphere cannot pass under bottom rail between stair and rail
- Lay the bottom rail along the stair and on top of the plywood base between the posts as shown in image on the right; snap a Bottom rail cutting aid onto each end of the rail as shown in images to help alignment and marking bottom rail for cutting
- Using bottom rail cutting aids as guides, shift rail until there is the same distance from the inside face of the post to the first hole on both ends of the rail section
- Check that baluster holes are at least 1 7/8" inch from the inside face of the post. If not shift one hole beyond the edge of the post and repeat step 2
- Baluster holes should be either hole-centered or spacer-centered (see images below) Be sure to check that horizontal distance between edge of last baluster and the post sleeve meets local code requirements and does not exceed 4-3/8" on either end of rail
- Mark the length to cut using Bottom Rail Cutting Aids or a straight edge on the top of bottom rail; when using gaskets, subtract 1/16" from each end then mark cut line
- Mark the angle to cut on the bottom rail so that correct fit will be produced at each end
- Check that the distance between the lines matches the distance between the posts
- Cut the bottom rail to length and check fit between posts



Space Centered



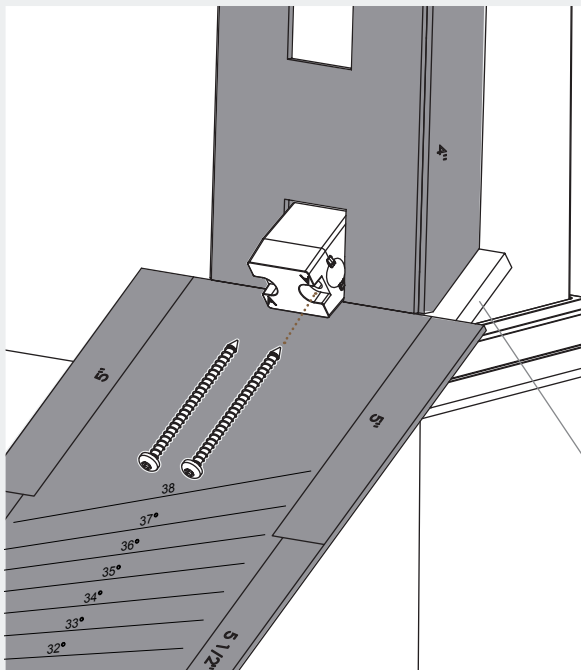
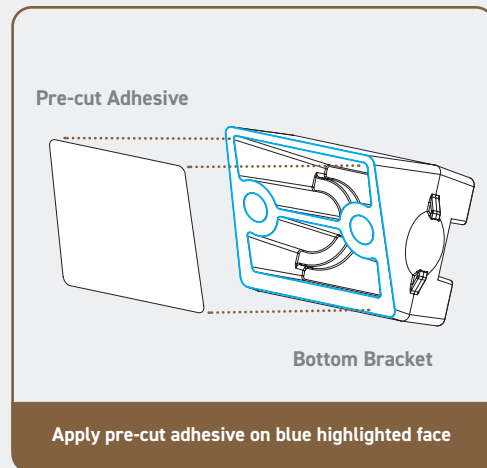
Baluster Centered

Note: Watch out for the 31.6° detent common on most miter saws

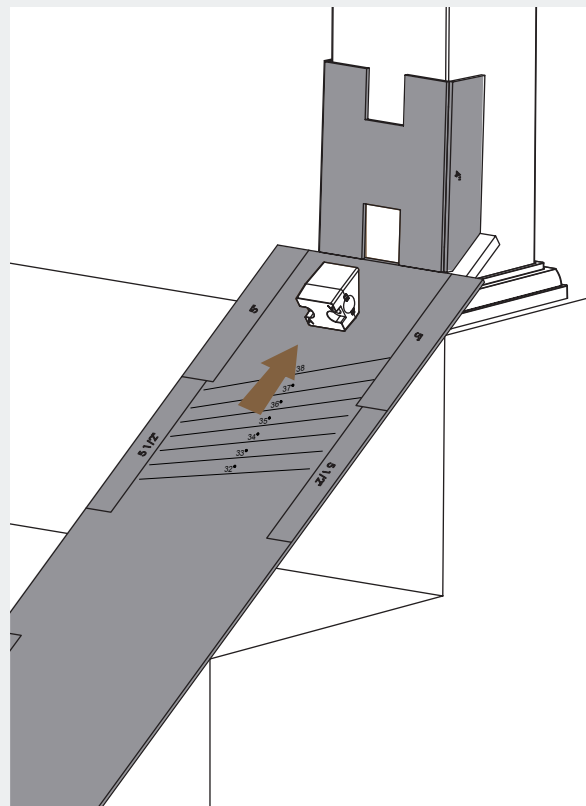
4

ATTACH BOTTOM BRACKET TO TOP POST

- Attach mounting adhesive (provided) to angled mounting face of upper bottom rail bracket (gray — ensure angle of bracket aligns with stair direction) center adhesive on angled face for best results
- Place stair install template on top of 1/2" plywood board and center on post; fold template so that it is flat against post and laying against board; for 4" post sleeve fold tabs around post to center.
- Slide bracket into correct cutout and secure to post with adhesive — ensure bracket is resting on cardboard support surface
- Pre-drill post sleeves only (not into wood post) with 5/32" bit using brackets as drill guide
- Drive two (2) 3" #10 screws (A) through brackets until fully seated — ensure screws are driven evenly and do not overdrive
- Carefully remove the template from bracket as it is used again during this process



1/2" Plywood

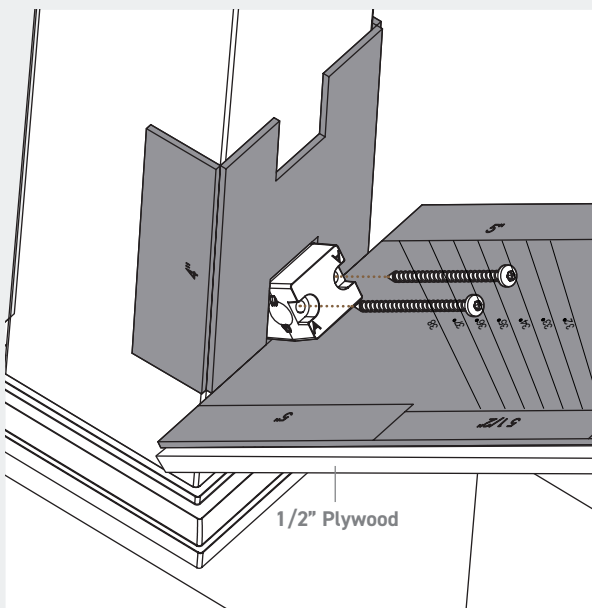
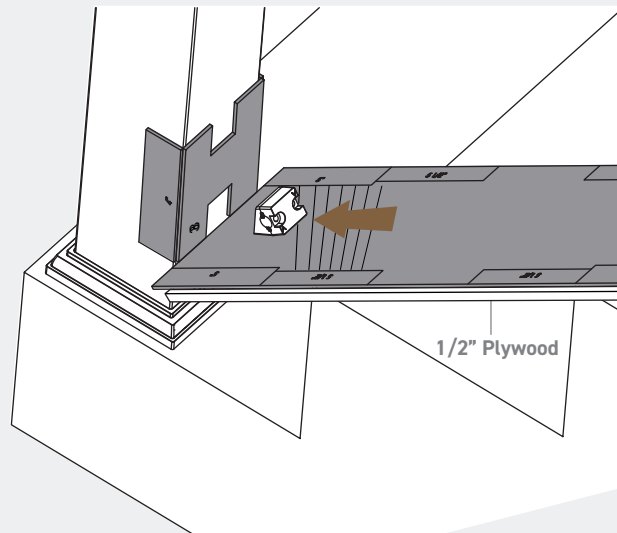
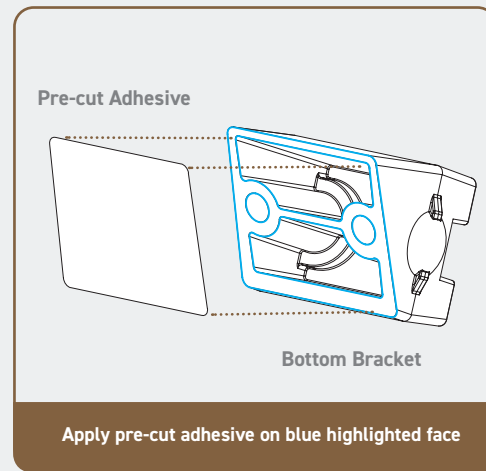


Note: This method uses a 1/2" plywood spacer board for all installations

5

ATTACH BOTTOM BRACKET TO BOTTOM POST

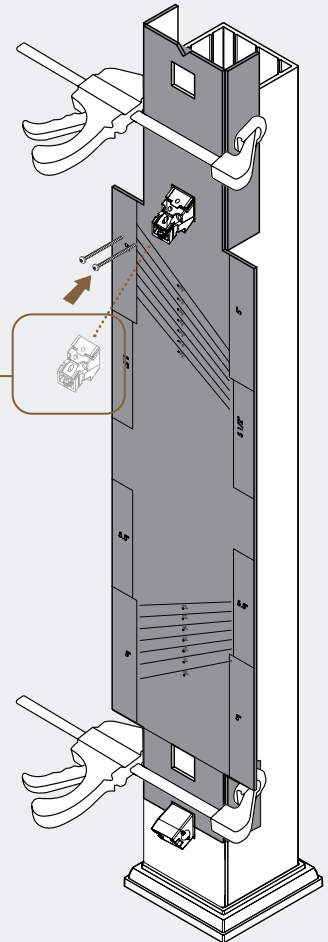
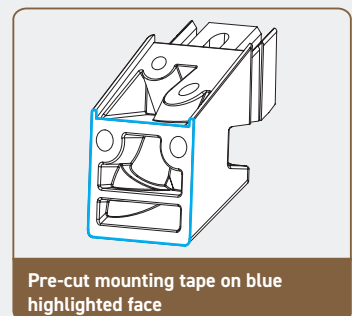
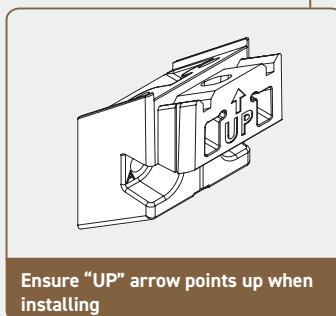
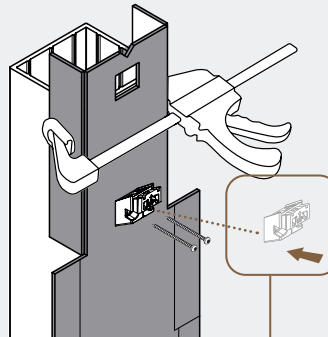
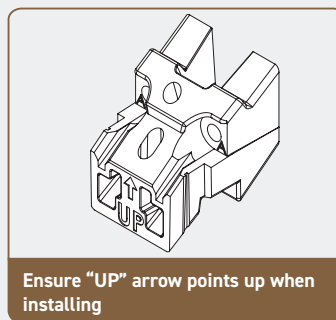
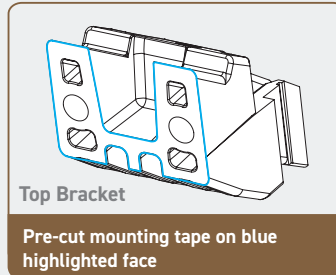
- Attach mounting adhesive (provided) to angled mounting face of bottom bracket (gray); center adhesive on angled face for best results
- Place stair install template on top of 1/2" plywood board and center on post. Fold template so that it is flat against post and laying against board; for 4" post sleeve fold tabs around post to center
- Slide bracket into correct cutout and secure to post with adhesive — ensure bracket is resting on cardboard support surface
- Pre-drill post sleeves only (not into wood post) with 5/32" bit using brackets as drill guide
- Drive two (2) 3" #10 screws (A) through brackets until fully seated — ensure screws are driven evenly and do not overdrive
- Carefully remove the template from bracket as it is used again during this process
- Remove plywood base as it is no longer needed



6

ATTACH TOP BRACKETS TO POSTS

- Fold template tabs based on post size; there are four tabs to fold per post sleeve size as seen in image below
- Ensure post sleeve is clean and dry
- Attach template to post using lower bracket to set height and soft clamps to hold it in place
- Attach mounting tape (included) to post mounting face of upper color-matched top rail bracket; ensure bracket is angled in proper direction to match stair angle and "UP" arrow points up
- Slide bracket into hole and secure to post with adhesive — ensure installation template is still firmly seated on bottom rail bracket and align the bottom of the upper top rail bracket with the bottom portion of the cutout in the template
- Pre-drill post sleeves only (not into wood post) with 5/32" bit using brackets as drill guide
- Drive two (2) 3" #10 screws (A) through upper top rail bracket until fully seated — ensure screws are driven evenly and do not overdrive
- Carefully remove installation template from bracket — remove from bottom bracket first and be sure to lift over lip of the top bracket carefully to avoid tearing template
- Move template to lower post, repeat items 2-7 above with lower top rail bracket



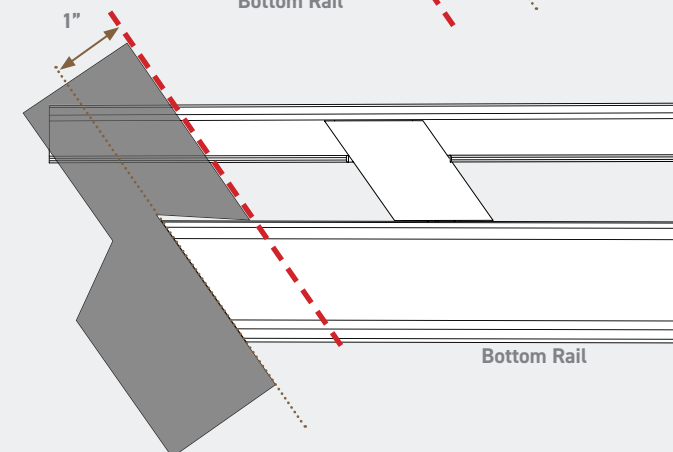
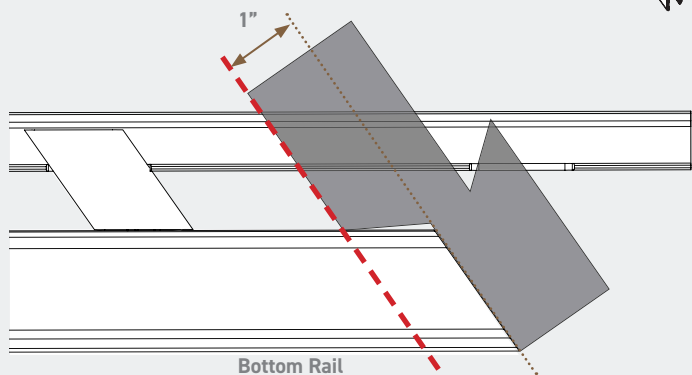
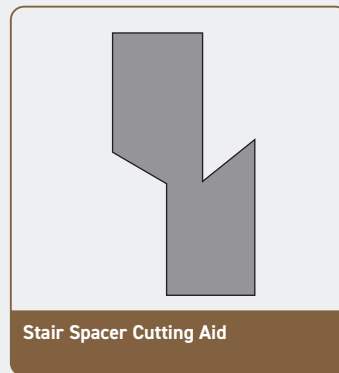
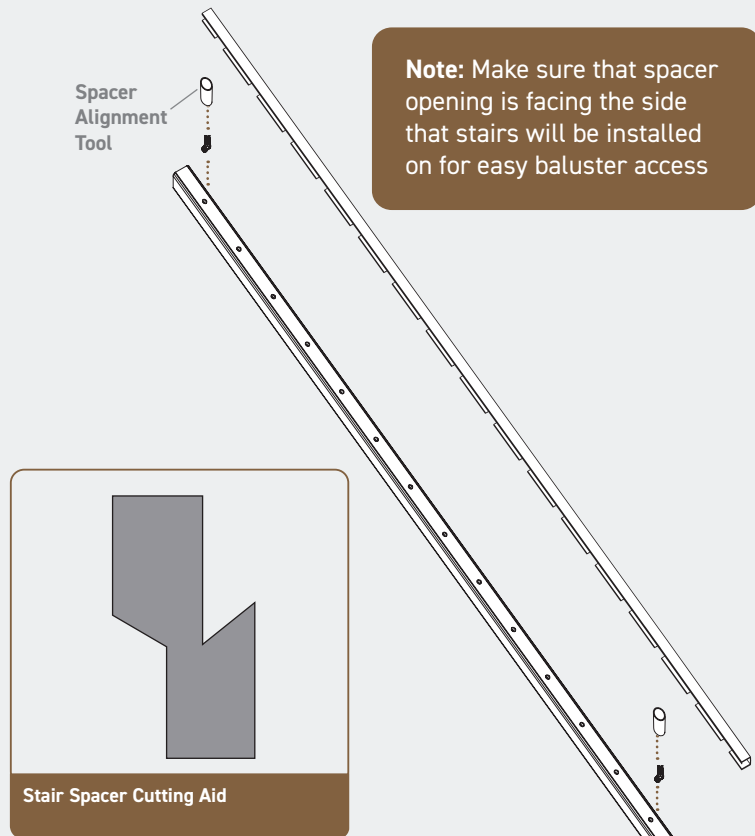
7

CUT TOP RAIL SPACER TO LENGTH

- Install baluster plugs in top side holes farthest from the center on each end of the bottom rail as seen in first image
- Install spacer alignment tools on top of plugs at both ends of the bottom rail and ensure angle direction of spacer alignment tools matches on the bottom rail ends
- Snap spacer onto covered plugs above bottom rail and ensure spacer alignment tools are fully seated past the lip on the edge of the spacer and that the spacer is level with bottom rail
- Remove stair spacer cutting aid from cardboard insert tray and hold in place on bottom rail as seen in figure below
- Mark spacer with the 1" offset distance using cutting aid; line should be at an angle so that it is parallel to rail cut as shown by red line in figure
- Repeat and mark spacer with the 1" offset distance using cutting aid on opposite end of the rail
- Remove spacer and alignment tools from bottom rail
- Cut spacer to length — cut to marked length with baluster openings facing you and spacer U-shape opening facing up to make cut; alternatively use snips or shears to make cut
- Test fit on onto top brackets — cut further if needed

Note: Be sure that cutting aid face is flat against angled face of the bottom rail

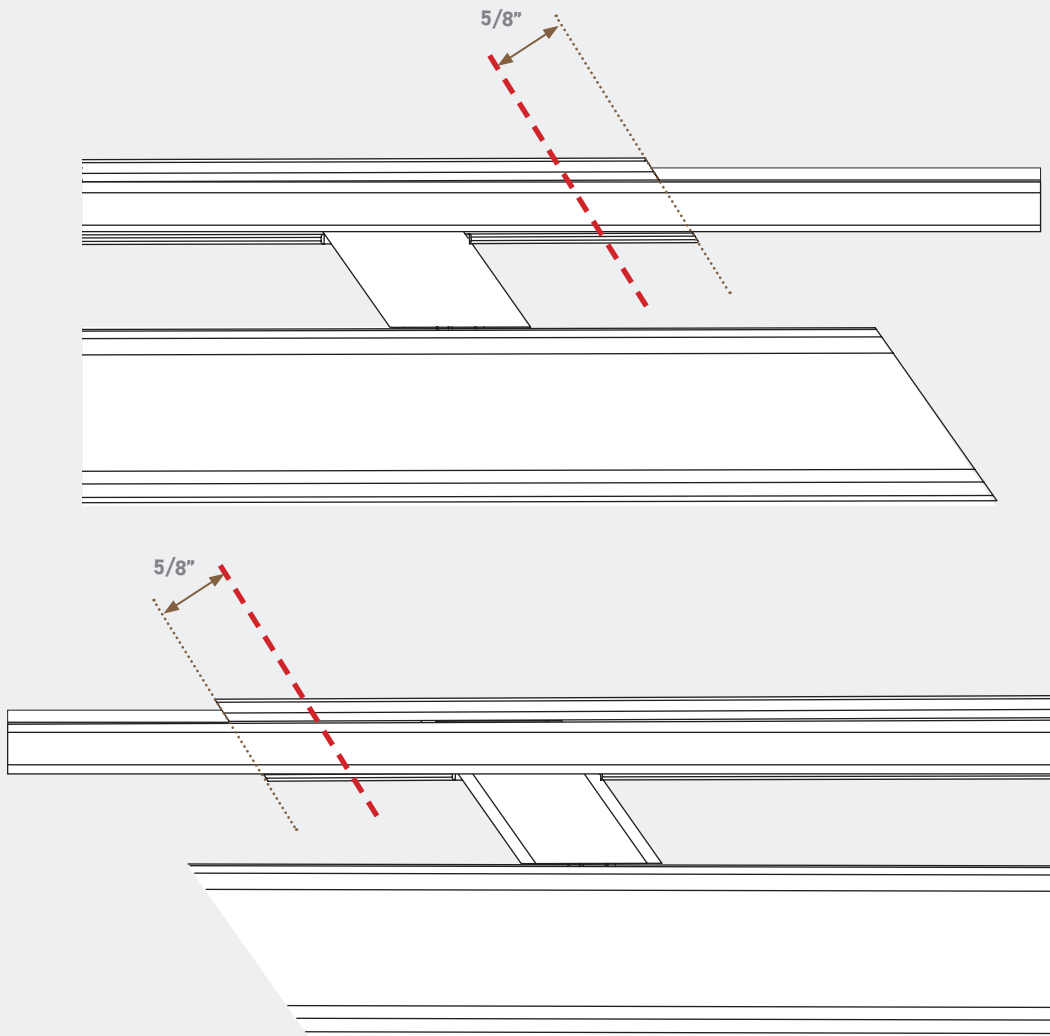
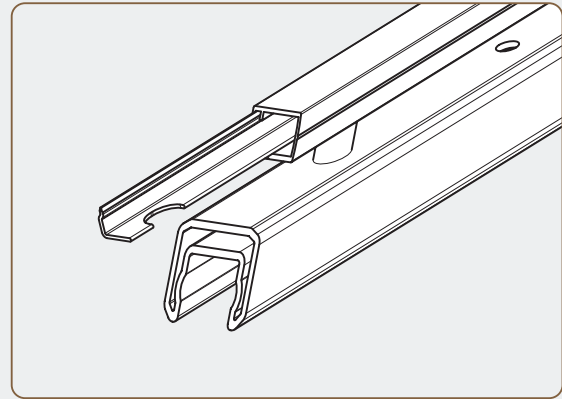
Note: Double-check dimension by holding spacer up to brackets before cutting. CUT SLOWLY as PVC material is prone to chipping if saw blade is advanced too quickly



8

CUT SPACER INSERT TO LENGTH

- Fit spacer insert into spacer and measure 5/8" from end of cut spacer; mark cut line so that ends of spacer insert will fit inside bracket nose on both ends
- Cut with snips/shears
- Dry fit spacer insert into spacer to ensure correct length and angles



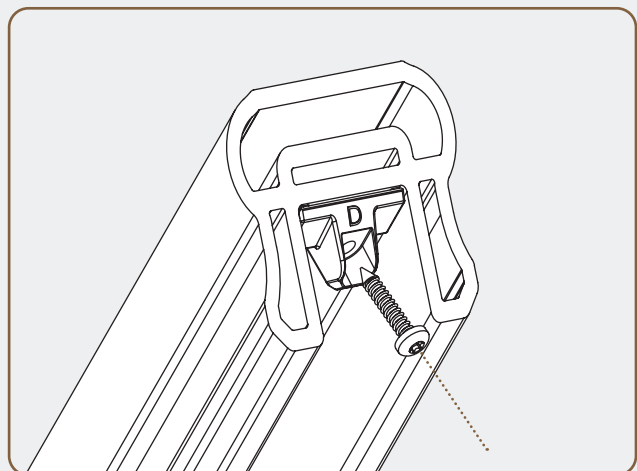
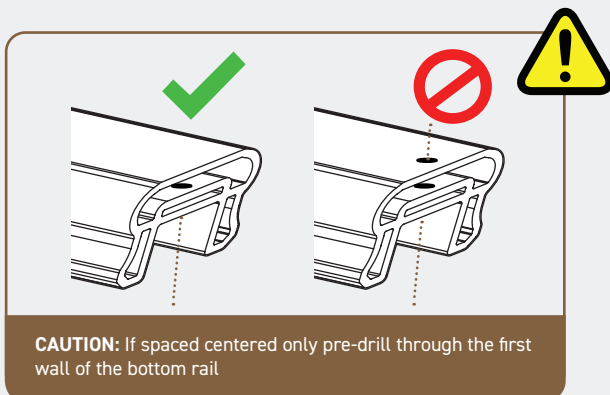
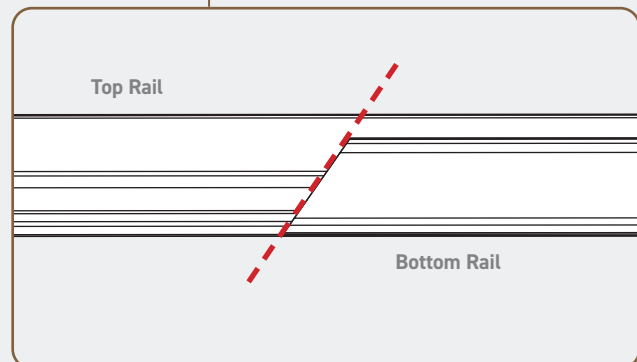
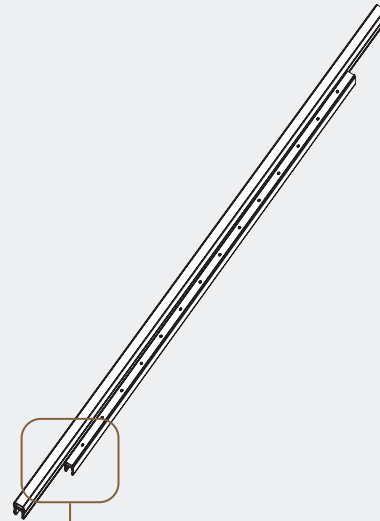
9

CUT TOP RAIL AND ATTACH BRACKET HOOK

- Mark top rail length — lay top rail next to bottom rail to mark the same length and angle
- Check to ensure space between posts at top rail bracket height — measure the post-to-post distance, compare it to the marked length on top rail and adjust top rail length if necessary
- When USING gaskets overall length should be at least 1/8" less than measured distance between posts
- Cut top rail to length
- Test fit rail over top brackets to ensure proper fit and adjust accordingly
- Align top rail bracket hook on underside of upper end of top rail, with the face marked D aligned to the rail (use a board if necessary) then pre-drill with 5/32" drill bit "being careful to drill only through 2 webs of the top rail, not the 3rd"

When USING gaskets place bracket so it protrudes 1/16" beyond end of the rail

- Secure bracket hook in place with #10 1" screw (D)



10

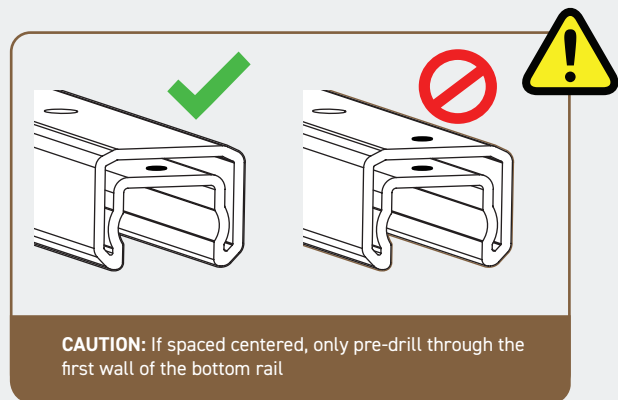
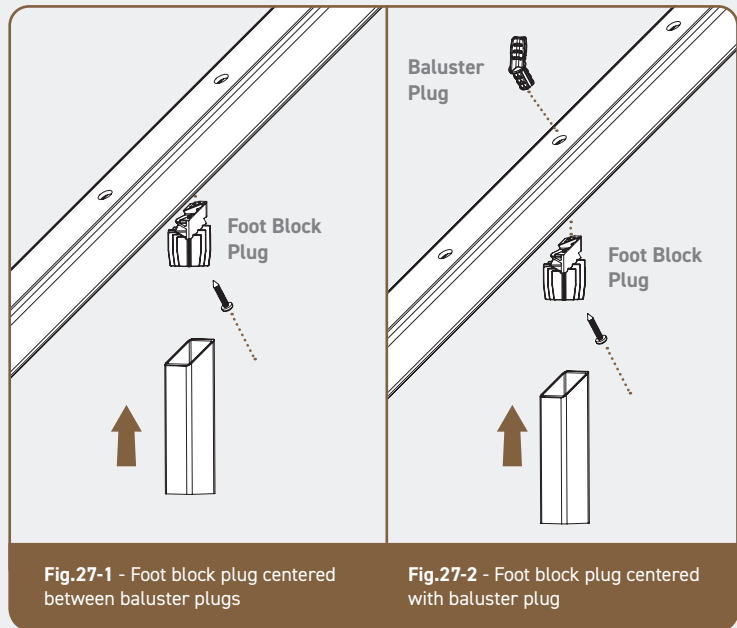
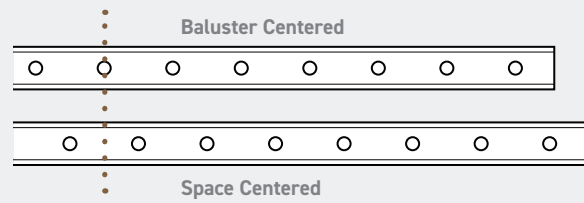
INSTALL FOOT BLOCK PLUGS (IF NEEDED ON BOTTOM RAIL)

- Installations greater than 36" require foot block:

One foot block — for installations greater than 36" long and up to 72" long

Two foot blocks — for installations greater than 72" long

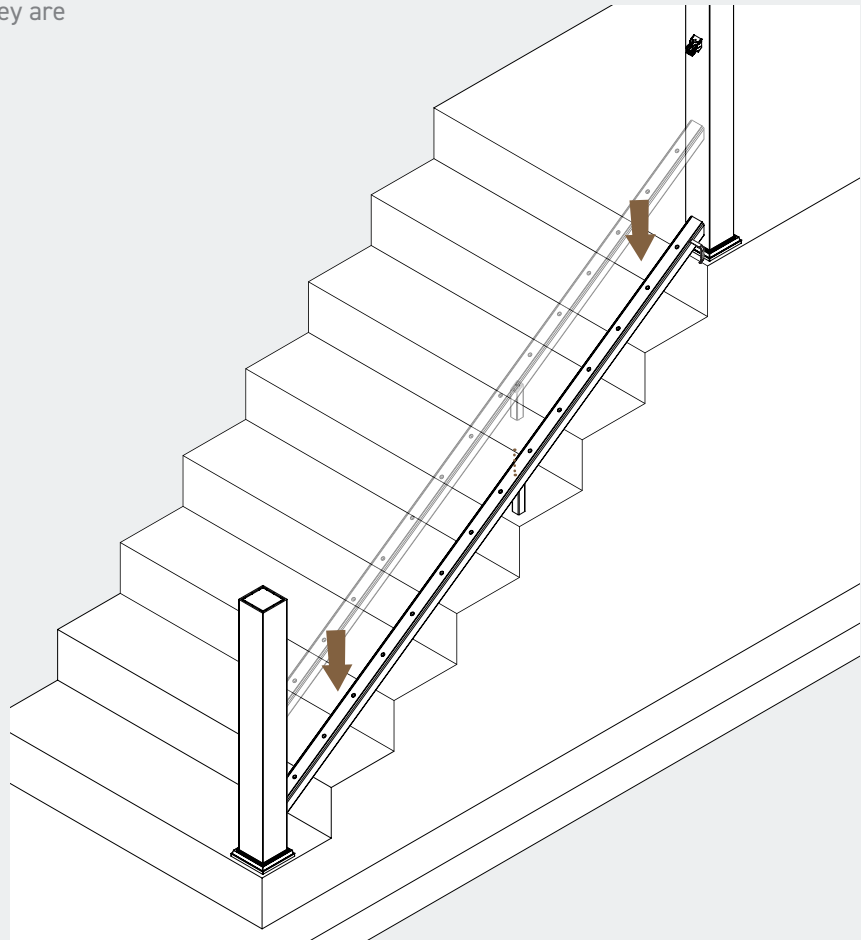
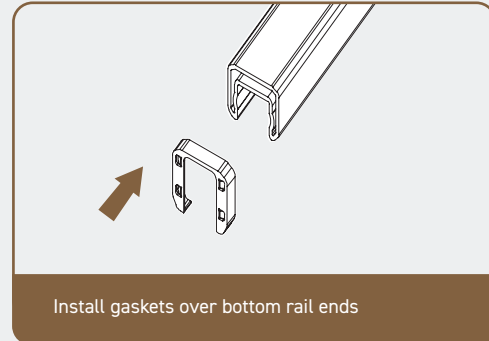
- Locate position(s) on bottom rail — foot blocks should be evenly spaced through the rail span depending on how many are necessary and they should either be space-centered (centered between two holes) or baluster-centered (under a hole)
- Measure and cut foot blocks to pre-determined rail angle to fit between bottom rail and stair tread at desired position(s) on bottom rail
- If baluster-centered (Fig. 27-2 right image): install baluster plug by pushing into hole on the top side of the rail, then place foot block plug on bottom side of rail and mount in place with 1" #10 screw (D)
 - Hold baluster plug in place with pliers, gripping the plug gently when driving screw
 - Drive screw until it seats – DO NOT over tighten screw as plastic will strip
- If space-centered (Fig. 27-1 left image): mark desired location, pre-drill with 5/32" bit through first wall of bottom rail and do not overdrive into outer wall; then install foot block plug by driving 1" #10 screw (D) until it is fully seated



11

ATTACH BOTTOM RAIL TO BRACKETS

- IF USING GASKETS, install over rail ends
- IF USING FOOT BLOCK(s), place foot block(s) onto foot block plug(s)
- Place bottom rail onto both bottom brackets — the bottom opening should be centered over brackets (it may rock slightly to one side or the other)
- Firmly press bottom rail onto bracket until it snaps into place
- Ensure bottom rail is fully seated on bottom brackets at both ends
- WHEN USING GASKETS, check that they are properly seated

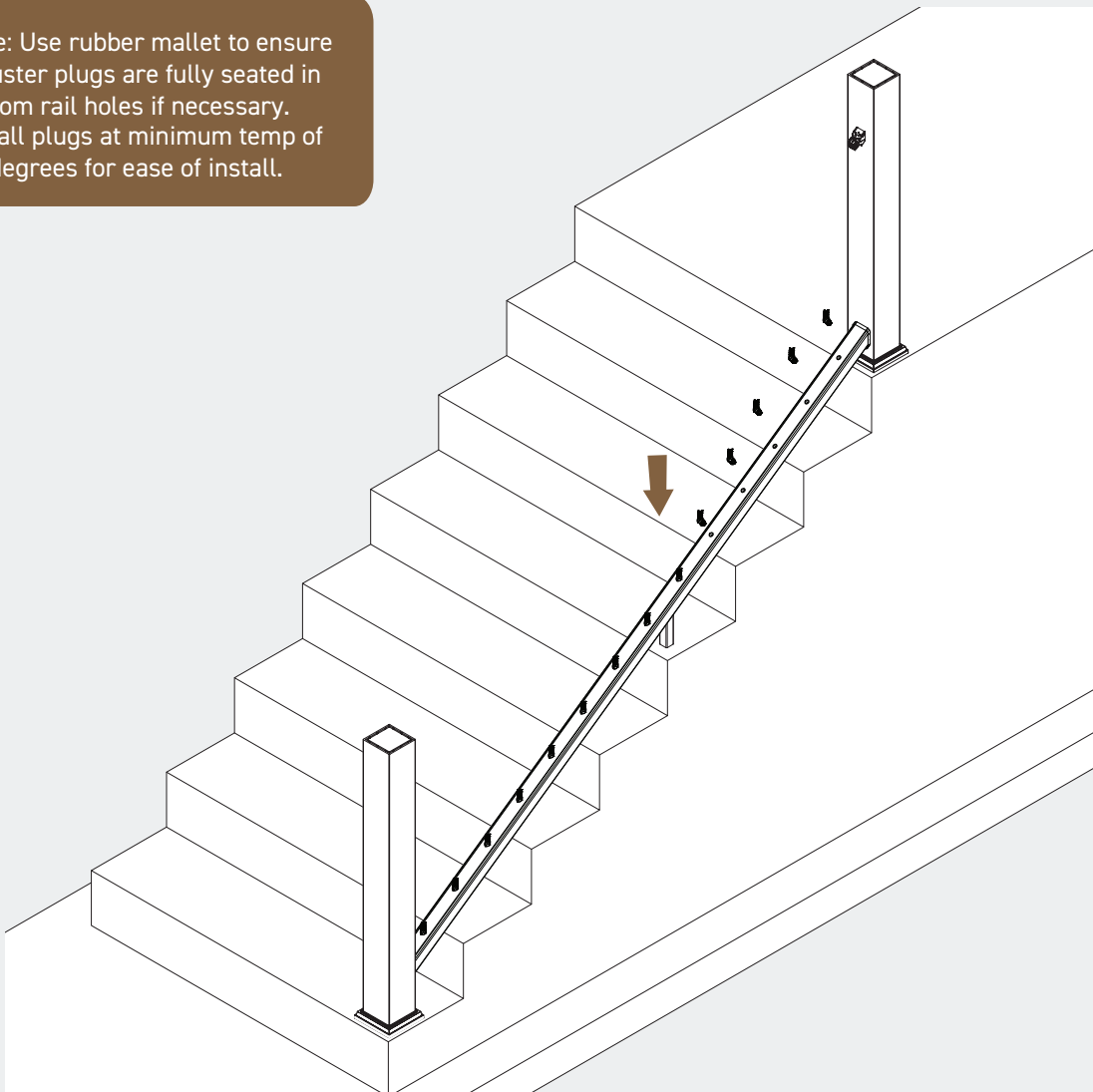
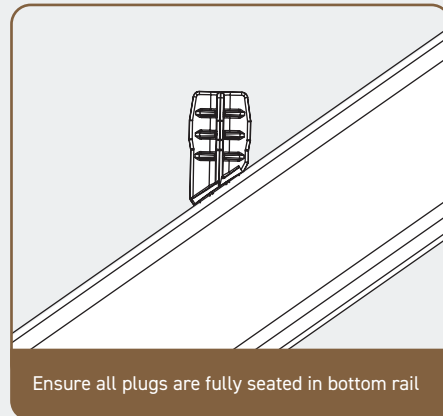


12

INSTALL BALUSTER PLUGS

- Press a baluster plug into each hole on the bottom rail
- Orient plugs so that they sit completely flush to bottom rail, and are in proper alignment with the stair angle to ensure balusters will be vertical
- Ensure all plugs are completely seated with fins flush against the bottom rail

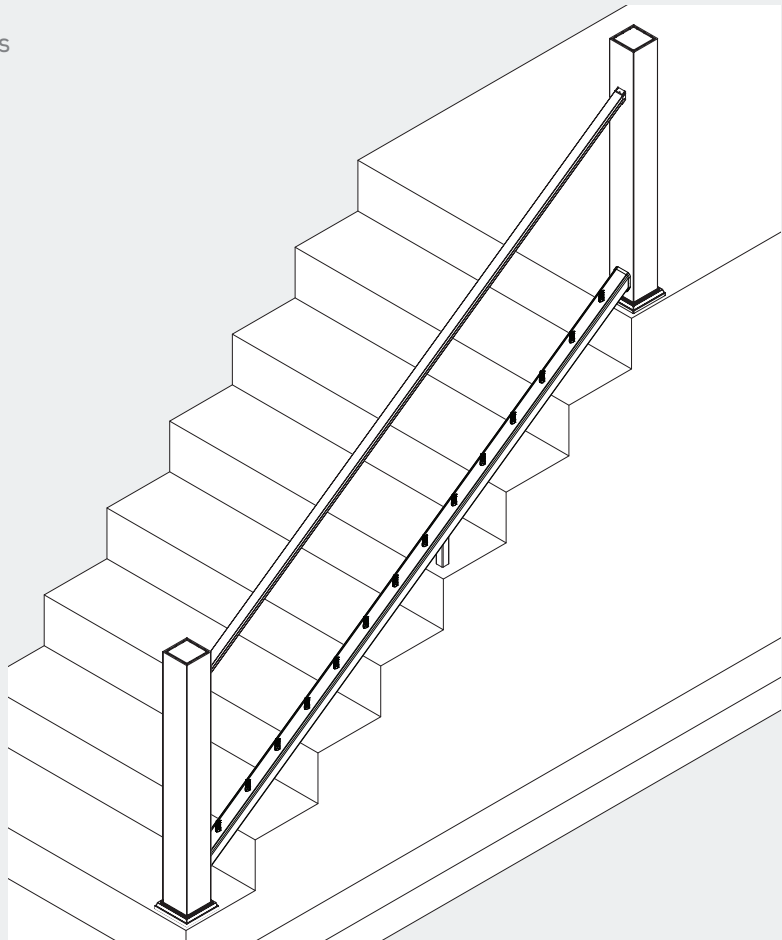
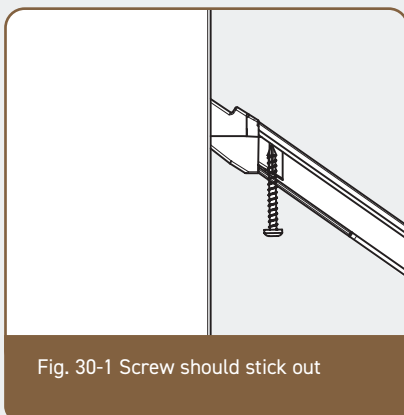
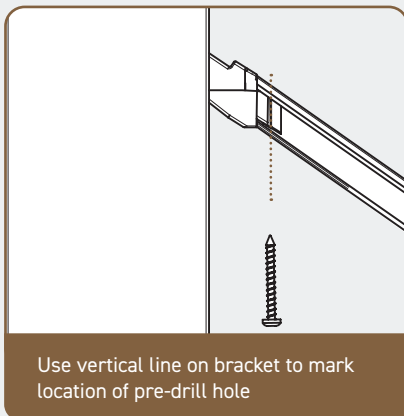
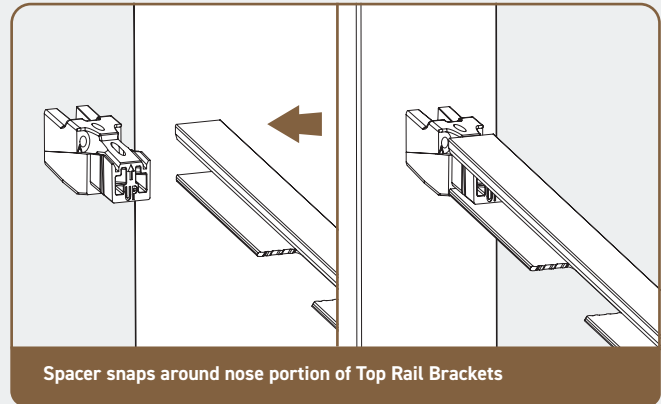
Note: Use rubber mallet to ensure baluster plugs are fully seated in bottom rail holes if necessary. Install plugs at minimum temp of 35 degrees for ease of install.



13

ATTACH SPACER TO TOP BRACKETS

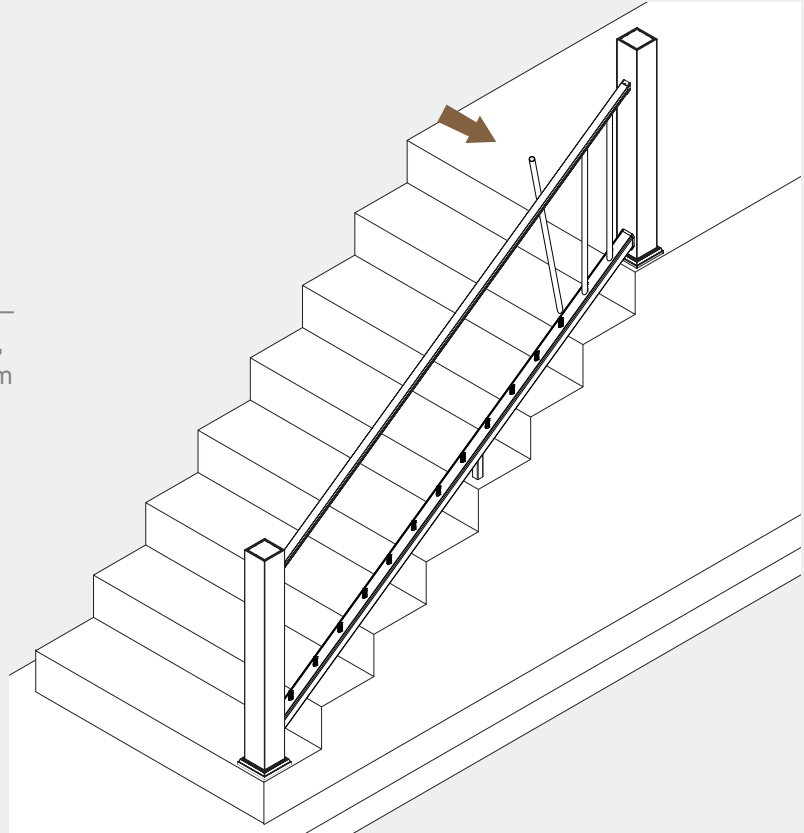
- Slide spacer onto top brackets fitting spacer ends around nose of each top rail bracket
- Check fit and length of spacer — trim to adjust as needed; the spacer should not be so tight that it bows up or down excessively
- Pre-drill with 5/32" bit into spacer on underside centerline where screw will attach to each top rail bracket. Use vertical line on bracket to mark location of pre-drill hole on each end of spacer. Only pre-drill through the spacer and not into the bracket
- Drive one #8 1.75" self-tapping screw (C) into hole under bracket — drive screw into bottom surface only, screw should stick out and be aligned with the vertical line on the bracket as in (Fig. 30-1)
- Repeat screw attachment on opposite end of spacer



14

INSERT BALUSTERS

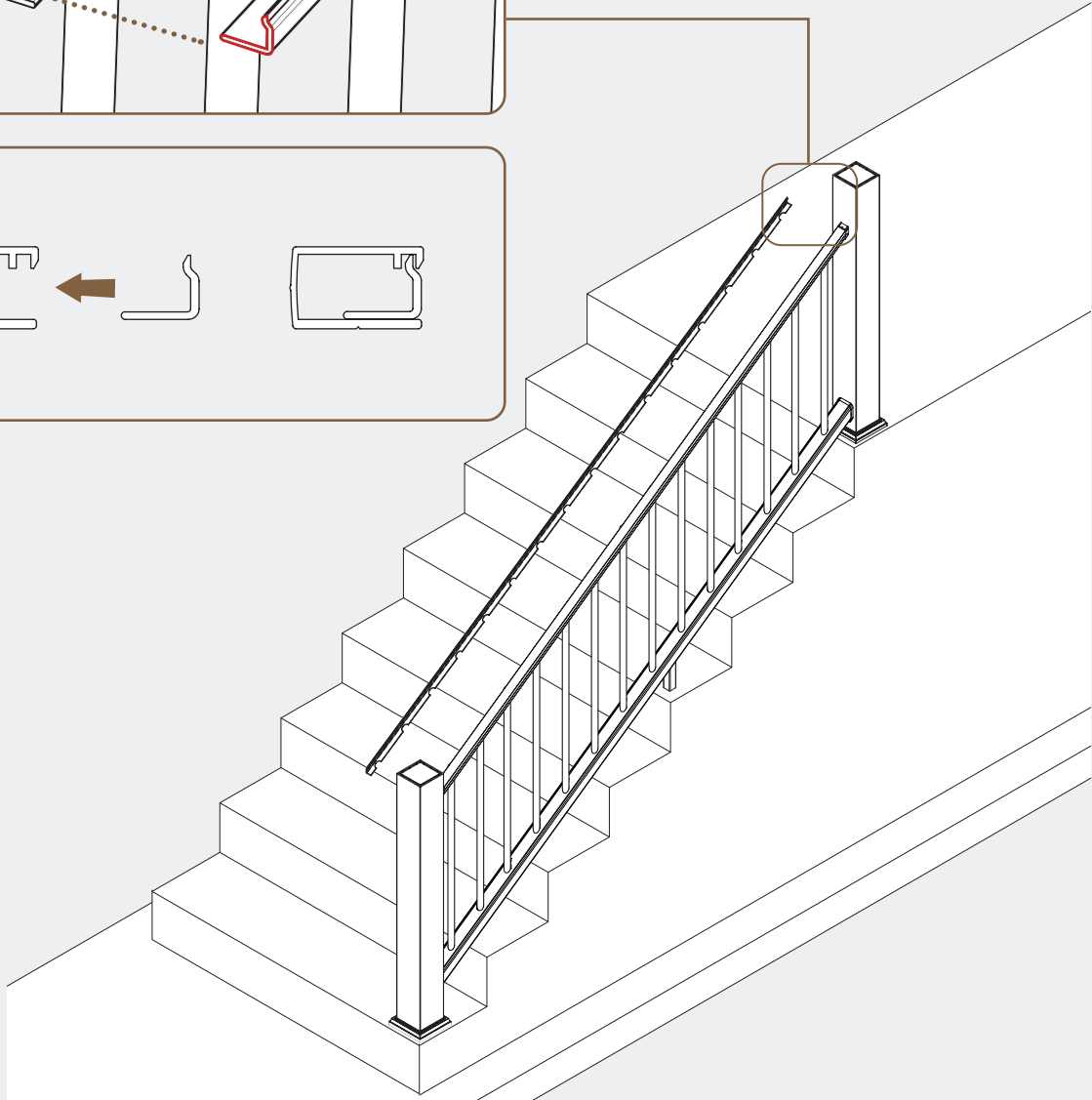
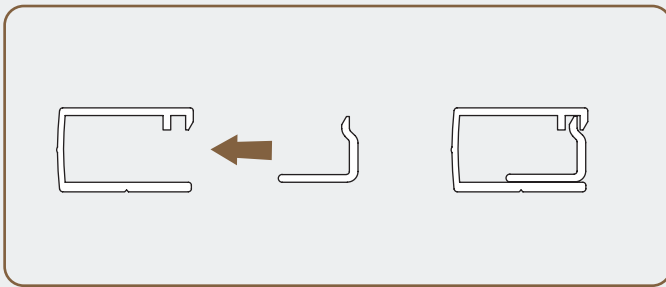
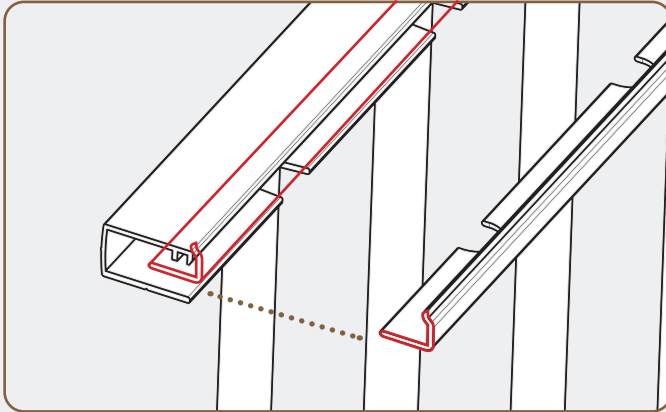
- Align baluster so that angle matches the angle of the bottom rail
- Place bottom of baluster onto plug with top tipping out at an angle and push down
- Stand baluster up into spacer until it clicks — ensure baluster is fully inserted into spacer, seated and pushed down onto plug in bottom rail (baluster should be flush with bottom rail)
- Repeat for all balusters



15

INSERT SPACER INSERT

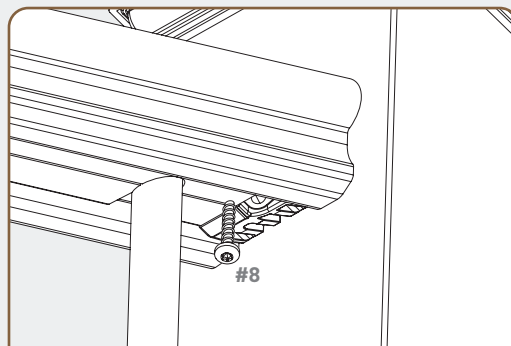
- Align cutouts of spacer insert with balusters on deck side of rail and snap into spacer to secure baluster



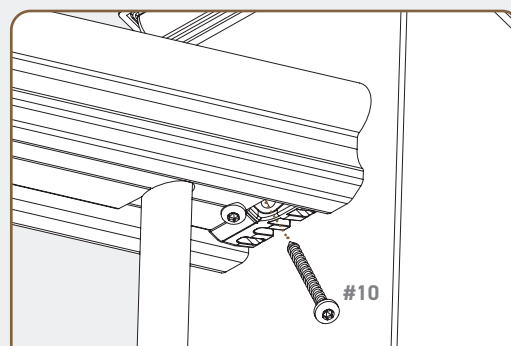
16

ATTACH TOP RAIL

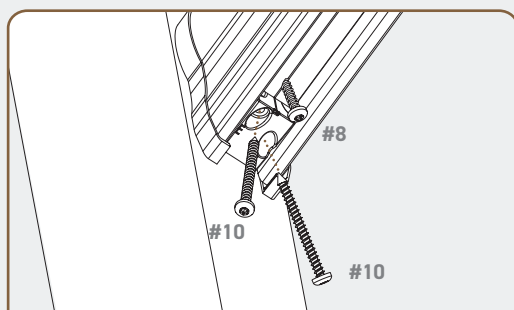
- IF USING GASKETS, install on ends of top rail
- Set top rail over spacer and top brackets — Push down firmly into place over entire length of top rail, so that spacer and brackets are completely encased by top rail
- Work on upper top rail bracket first
- Continue to drive one #8 1.75" self-tapping screw (C) through the spacer, the channel in the bracket, and into the top rail on one end of top rail — use an extended length bit and hold or clamp top rail in place
- Pre-drill into hole (E) and through the Upper end of the top rail. Do not drill through the top of the top rail.
- Drive one #10 2 1/8" screws (E) through the angled hole of upper top bracket — use an extended length bit and / or a right angle extension if necessary to reach screw be careful not to overdrive screw
- Check that top brackets are flush with bottom of top rail; if not, reverse all screws slightly and tighten again, holding down rail to ensure it ends up flush
- Repeat step 16 for the lower top rail Bracket. Note: There are two #10 "E" screws required for the lower top rail bracket



Drive one #8 screws through Spacer and into hole (C) in Bracket

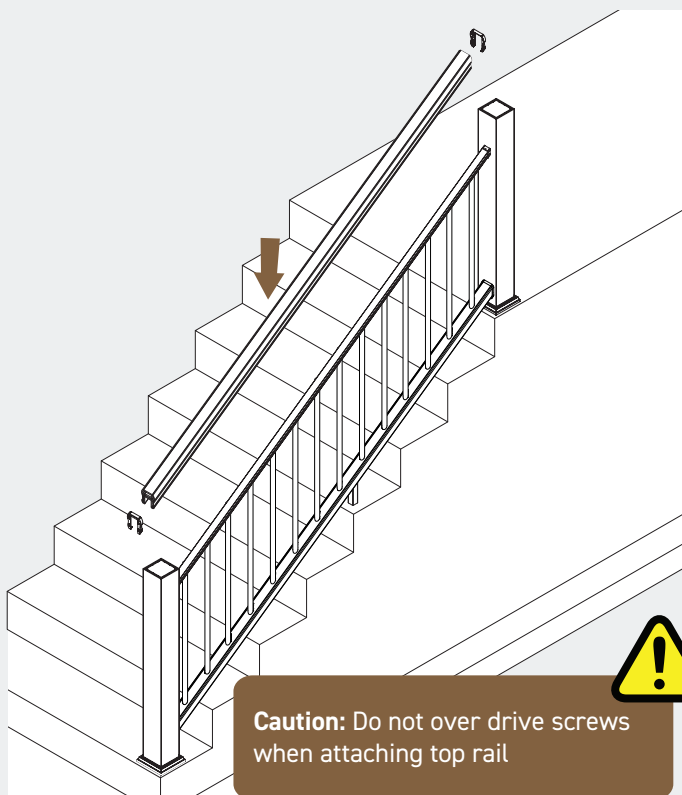


Drive one #10 screws through angled hole (E) in bracket



Drive one #8 screws through Spacer and into hole (C) in Lower Bracket

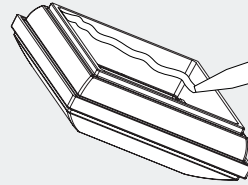
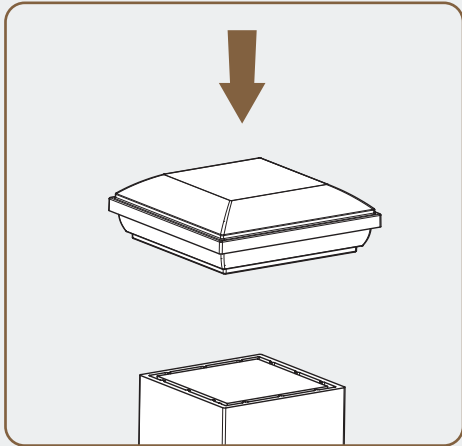
Drive two #10 screw into the hole (E) in the Bracket



Caution: Do not over drive screws when attaching top rail

17

ATTACH POST CAPS



Installation Tips: Apply silicone inside of cap. Do not apply to post and then slide cap on. Do not add silicone to any other parts that it is not intended for

