

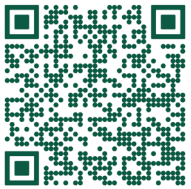
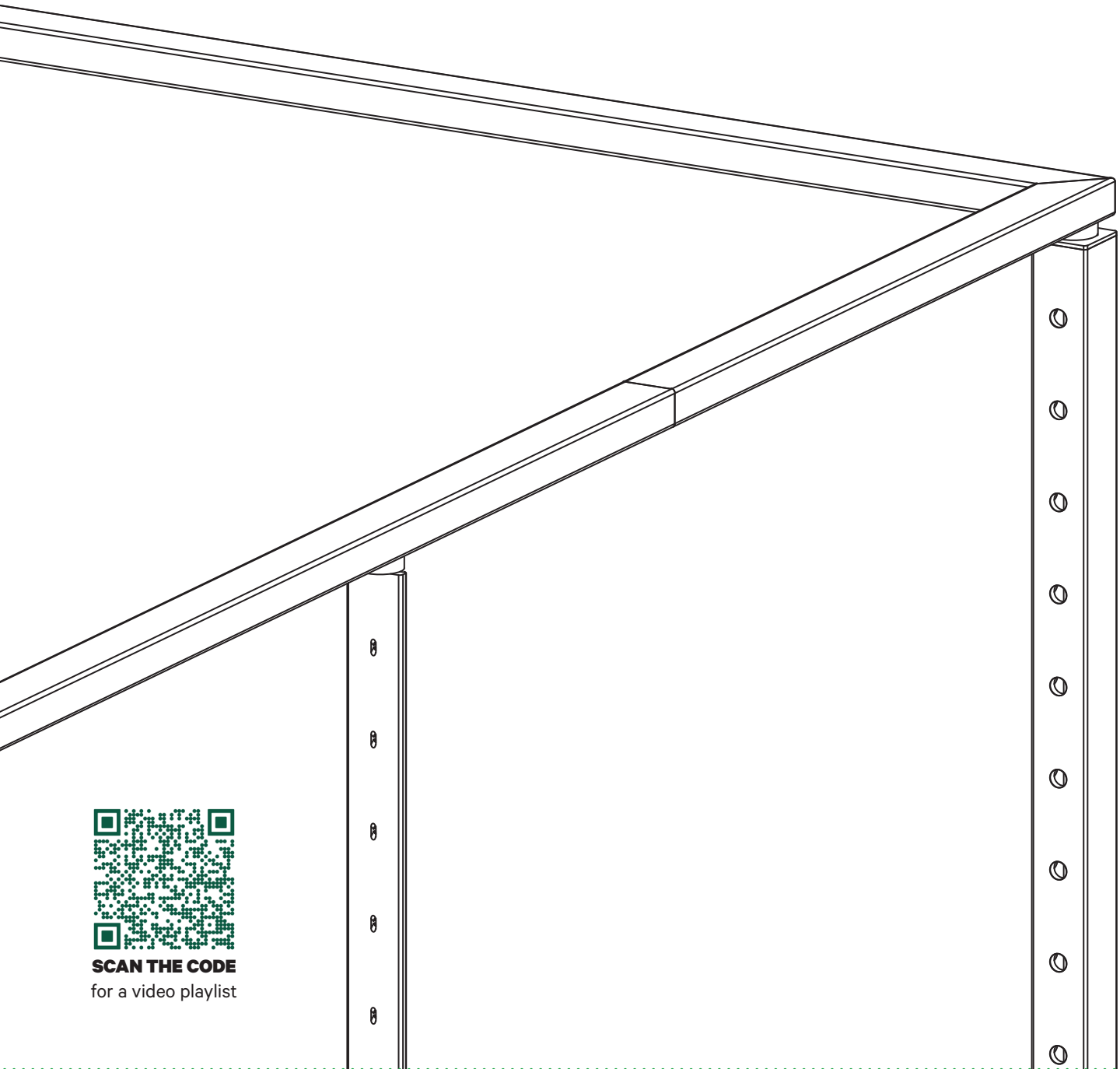
*how to install*

# Signature Series Handrail

Reinforced Aluminum Handrail | Stainless Steel Handrail | Splines | Handrail Hinges | Handrail Brackets

Assemble and attach handrail to your Signature Series posts.

 SIGNATURE SERIES



**SCAN THE CODE**  
for a video playlist

# Project Overview

## tools

- ☐ 7/32" drill bit\*
- ☐ 11/64" drill bit\*
- ☐ 5/32" drill bit\*
- ☐ 5/32" driver\*
- ☐ 3/16" Allen wrench\*
- ☐ 3/32" Allen wrench\*
- ☐ 1/8" Allen wrench\*
- ☐ 7/16" socket or wrench
- ☐ 10-24 National Course tapered tap\*
- ☐ 1/4-20 National Course tapered tap\*
- ☐ T-Handle tap wrench\*
- ☐ Handrail Clamp for Line Posts\*
- ☐ Handrail Drill Guide and Template\*
- ☐ Quick clamps
- ☐ Power drill

## ☐ Power saw:

### ☐ For Aluminum Handrail:

Miter saw with a non-ferrous metal-cutting blade

### ☐ For Stainless Steel Handrail:

Miter bandsaw with a fine-tooth metal-cutting blade

- ☐ Tape measure
- ☐ Speed square
- ☐ Straightedge
- ☐ Angle finder
- ☐ File
- ☐ Rubber mallet
- ☐ Fine-point pencil
- ☐ Spring-loaded center punch (optional)

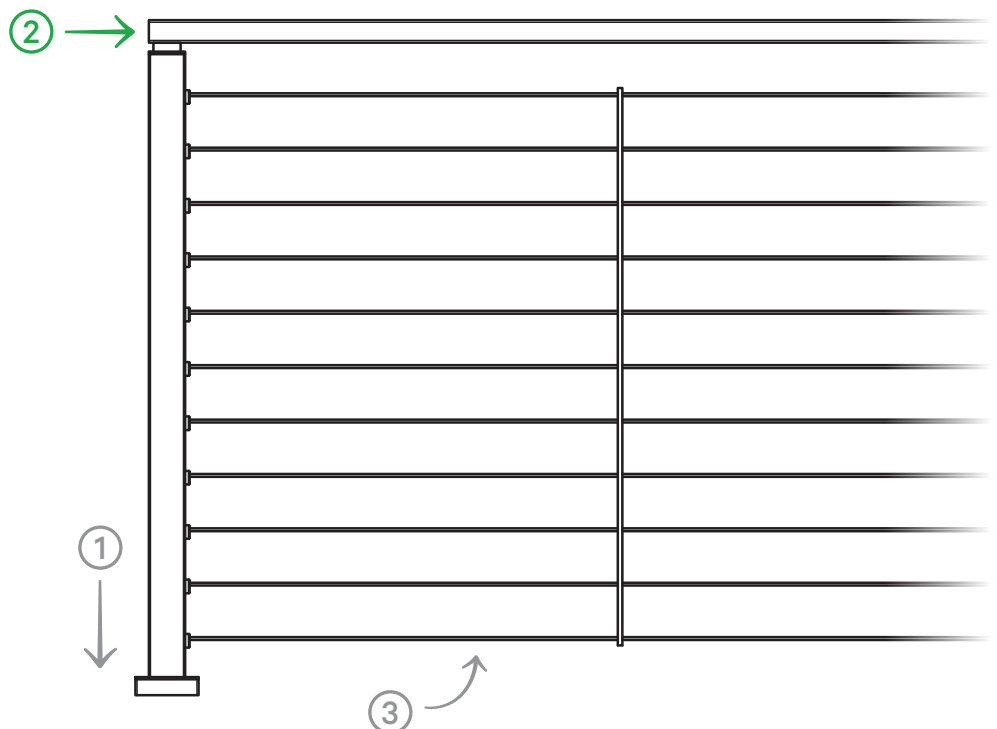
## supplies

- ☐ Handrail\*
- ☐ Handrail Mounting Screws\*
- ☐ Splines\*
- ☐ Handrail Hinges\*
- ☐ End Caps\*
- ☐ Touch-up Paint\*
- ☐ Painter's tape
- ☐ Silicone sealant (Stainless Steel Handrail only)\*
- ☐ Machine oil (optional)
- ☐ Canned air (optional)

\*available at [cablebullet.com](http://cablebullet.com)

## Order of Installation

- ① Set Posts
- ② Attach Handrail
- ③ Install Cables

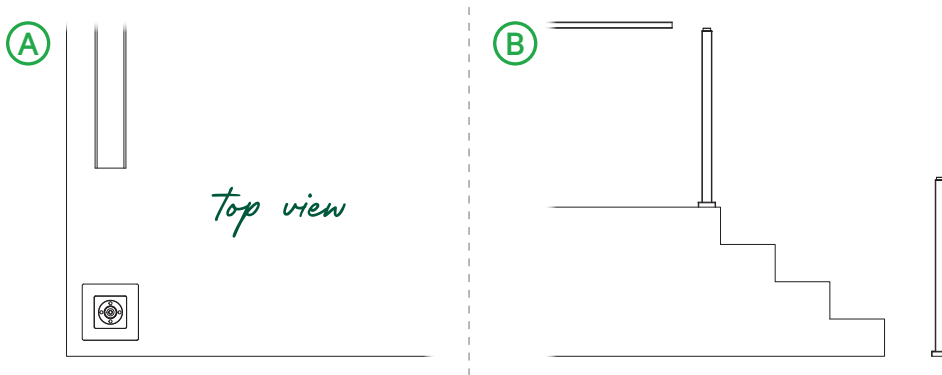


# Installation Overview

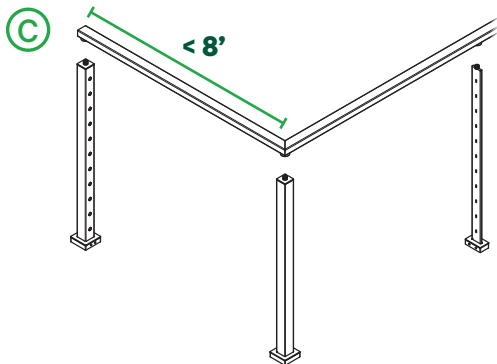


## READ BEFORE STARTING INSTALLATION

1. **Ensure that all posts are set plumb and adhere to our post spacing guidelines.** (See *Signature Series Posts Setup Guide*.)
2. **Start at one end and work your way along the run one connection (see page 4) at a time.** Wait to install the fixed straight spline (aluminum handrail) or structural spline (stainless steel handrail) just before a corner or stair transition until prompted to do so.
3. **When your railing transitions to either a corner (A) or stair (B) transition, stop your handrail short of the transitions and proceed to the appropriate connection section.**



4. **Certain sections may require multiple connections within a short span (under eight feet) and may need to be assembled as a unit before securing posts (C).** This could be a short run with a corner or a stair transition. Assemble the whole unit and secure it to your posts all at one time. This will help you avoid removing anchoring screws in order to attach the stationary post tops.



5. **When your entire railing is assembled, secure all stationary post top collars to center pins and check all stair line posts for secure handrail connections.**



**PLEASE NOTE:** All Cable Bullet recommendations and rail components are designed to comply with International Residential Code (IRC).

Building codes may vary, and it is the installer's responsibility to verify that the installed system complies with all applicable state and local building codes.

For more information on Cable Bullet and building code standards visit:  
[www.cablebullet.com/pages/terms-conditions](http://www.cablebullet.com/pages/terms-conditions)

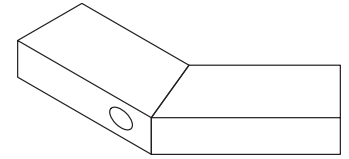


### CAUTION:

Wear eye protection during installation.

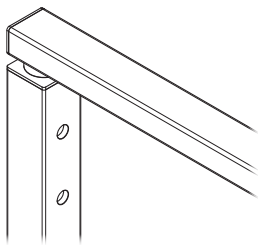
# Connections Index

**For Custom Splines**  
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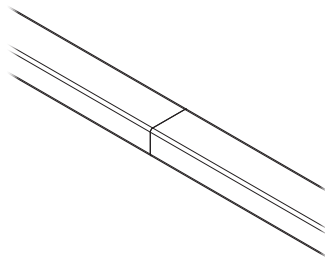
## **Level Terminal Posts**

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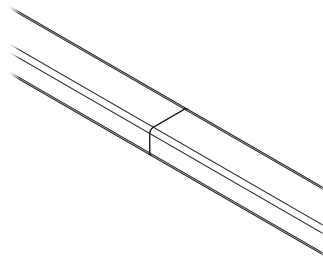
## **Fixed Straight Splines for Aluminum Handrail**

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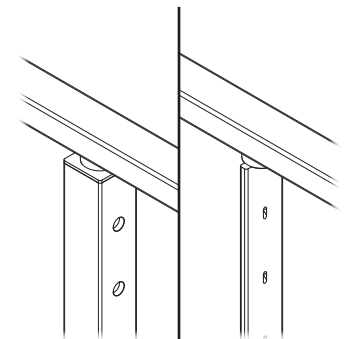
## **Structural Splines for Stainless Steel Handrail**

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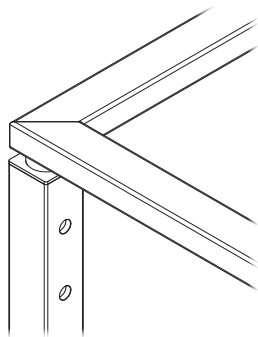
## **Two-Way and Level Line Posts**

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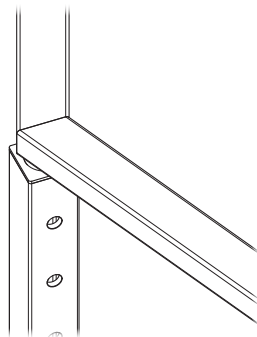
## **Right-Angle Corner Transitions**

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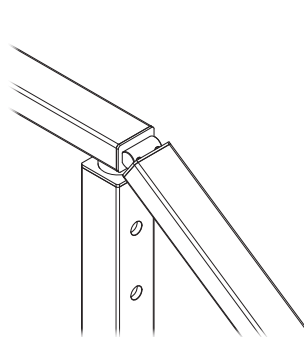
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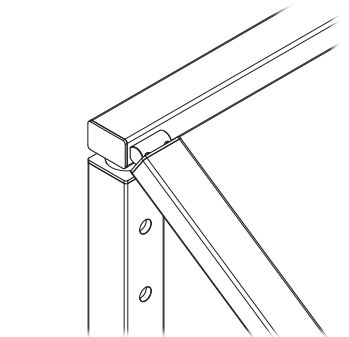
## **Stair Transitions with Handrail Hinges**

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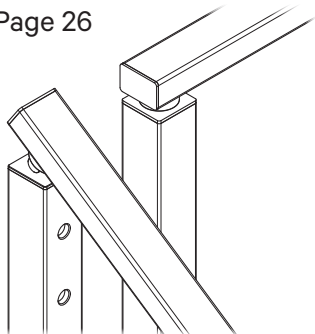
## **Stair Corners with Handrail Hinges**

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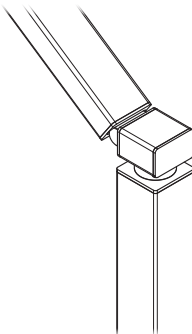
## **Stair Corners with 2-Post Configurations**

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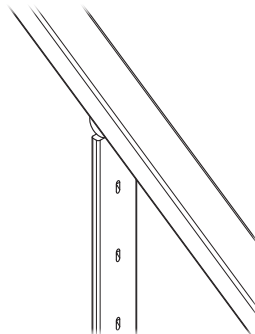
## **Stair Ends with Handrail Hinges**

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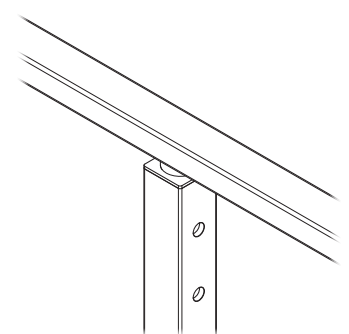
## **Line Post Tops for Stair Runs**

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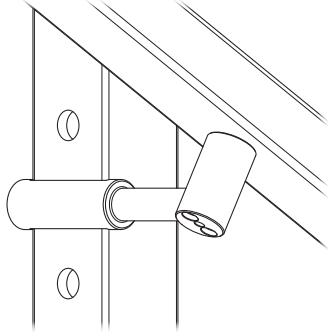
## **Stationary Post Tops**

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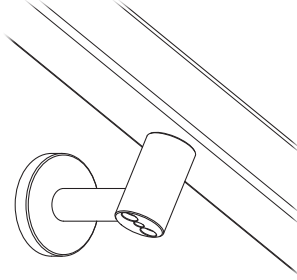
## Post-Mounted Handrail Brackets

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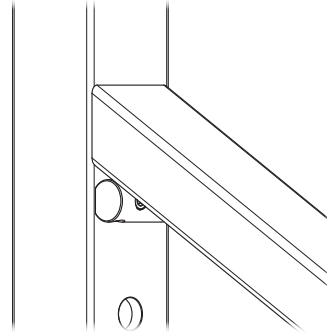
## Wall-Mounted Handrail Brackets

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## Post-Side Handrail Brackets

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# Installation Instructions

## Cutting and Drilling Handrail

*Best practices to protect your handrail's finish and provide the cleanest handrail joints.*

### *aluminum handrail*

#### Cutting

1. Apply painter's tape around the perimeter of the handrail before marking your cutting location and angle (if applicable). This will prevent the saw blade from chipping the powder coat.
2. Cut the handrail using a **miter saw with a non-ferrous metal-cutting blade**. File away any burrs.
3. Before removing the tape, lightly spray the exposed ends with touch-up paint to cover any blemishes and minimize the appearance of seams.
4. Remove the painter's tape.

#### Drilling

1. Cover the handrail with painter's tape before drilling to prevent the drill bit from chipping the powder coat.
2. When drilling, apply steady, light pressure and keep the drill level with your guide or mark.

### *stainless steel handrail*

#### Cutting

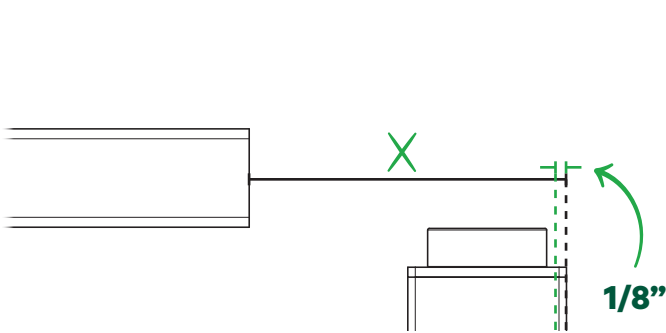
1. Cut the handrail using a **miter bandsaw with a fine-tooth metal-cutting blade**. Use slower speeds to reduce friction, discoloration, and burring.
2. If burrs occur, file them away before installing your handrail.

#### Drilling

1. Set your drill to **high speed, low torque**—typically second gear.
2. When drilling, apply steady, light pressure and keep the drill level with your guide or mark. As you drill, steel chips should begin to fall away from the handrail. If you notice any smoke, stop immediately and allow the steel to cool, either by waiting or applying water or lubricant to the area.

# Level Terminal Posts

Connect your handrail to the first or last post on a level run.

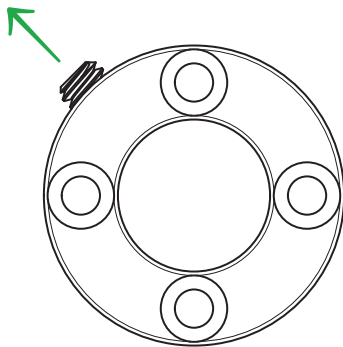


## 1. For the First Post in a Level Run:

Skip to step 2.

## For the Last Post in a Level Run:

Find the length of your handrail by measuring to the far side of your end post (X), subtract 1/8", and cut a length of handrail to this length.

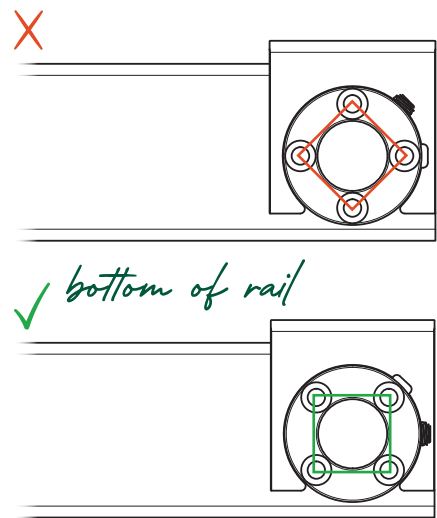
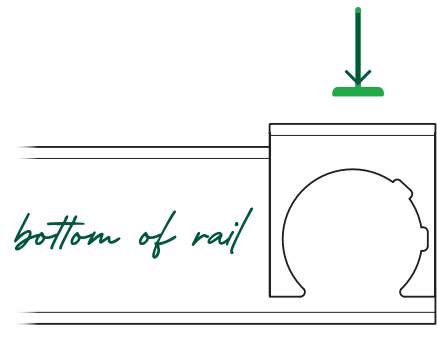


## 3. Prepare Post Top

Remove the post top collar from the end post center pin using a 1/8" Allen wrench, leaving the set screw slightly protruding to prevent the post top from rotating inside the template.

## 2. Find Post Top Location

Align the edge of the Handrail Drill Guide and Template flush with the end of the piece of handrail and clamp it in place.

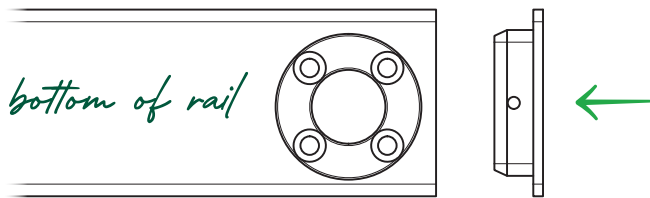


## 4. Position Post Top


Insert the post top collar into the template and use the set screw cutouts to position the holes in a square formation rather than a diamond.

## 5. Attach Post Top

Continue to **Stationary Post Tops** instructions on page 35.

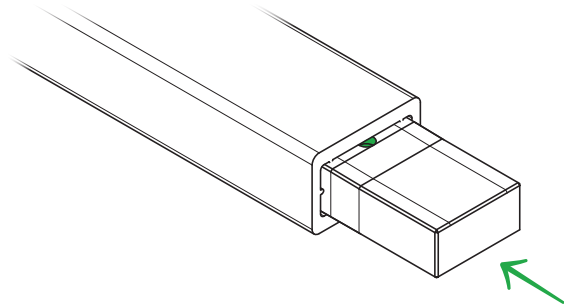


## 6. Slide in your end cap.

 **PRO TIP:** If using Stainless Steel Handrail and the end cap has a loose fit, apply a thin bead of clear, exterior-grade silicone caulk or sealant to both long, interior sides of the end cap before inserting. Wipe away any excess caulk and use painter's tape to hold it in place until dry.

# Fixed Straight Splines for Aluminum Handrail

Connect two lengths of aluminum handrail anywhere along a straight, continuous run with these structural splines. Wait to install the Fixed Straight Spline immediately before a corner or stair transition until prompted.



## 1. Insert Spline

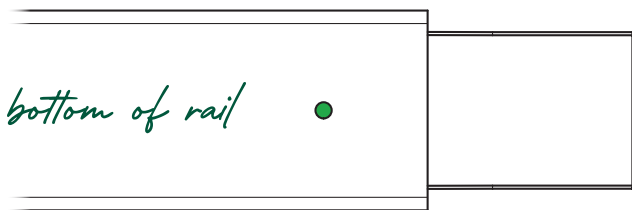
Slide the Fixed Straight Spline into the end of your handrail until the dimple is flush with the end of the handrail. You may need to use a rubber mallet to gently tap the spline into place.



**PRO TIP:** The internal ribs in the aluminum handrail are designed to be filed down on-site to ensure the most snug fit for your splines. Use the flat side of a narrow hand file to fine-tune the handrail opening. You will know you have a good fit when you begin to encounter resistance from the spline when the dimple is 1/4" from the cut edge of the handrail.

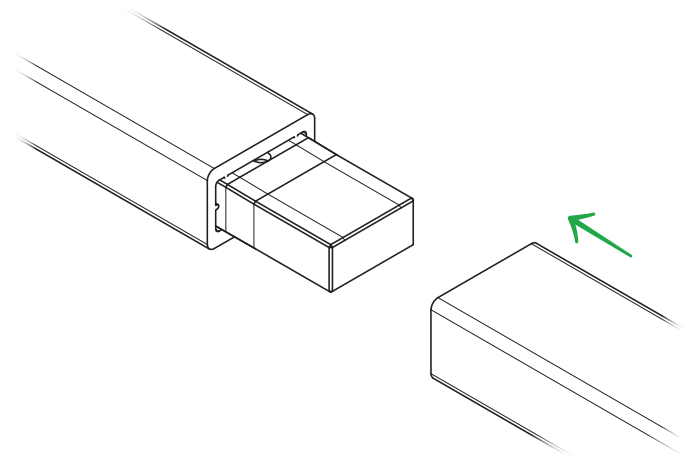


**PRO TIP:** For the cleanest joint possible, cut off the factory ends with a precise 90° cut.



## 2. Secure Spline

On the underside of the handrail, drill a 1" deep pilot hole using a 5/32" drill bit, then tap the pilot hole using the 10-24 tap. Drive in a 10-24 x 1/2" set screw by hand using a 3/32" Allen wrench.



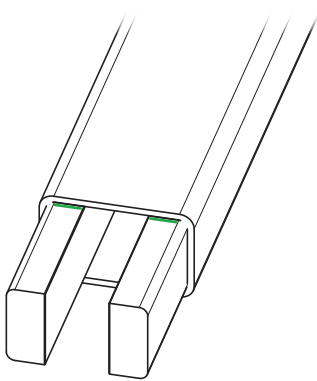
## 3. Attach Handrail

Slide a new length of handrail over the exposed end of the spline and *repeat step 2*.



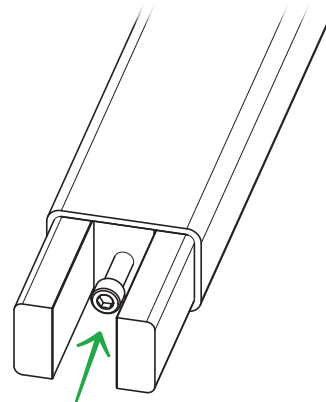
# Structural Splines for Stainless Steel Handrail

Connect two lengths of stainless steel handrail anywhere along a straight, continuous run with these structural splines.



## 1. Insert Spline

At the end of the handrail, insert two stainless steel spline pieces until the notches are even with the end of the handrail.

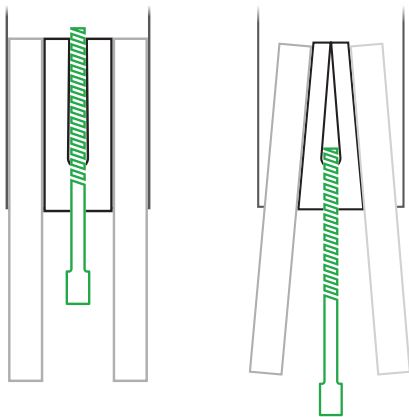


## 2. Insert Wedge

Slide a Delrin wedge between the stainless pieces with the screw head accessible. Push the Delrin in until flush with the edge of the handrail.

*Top view*

(Exaggerated for demonstration purposes)



## 3. Tighten Spline

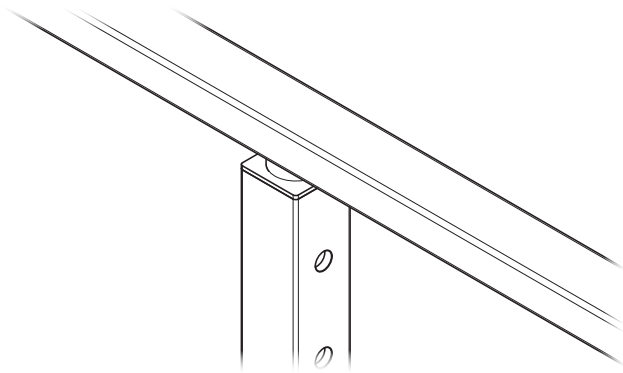
To tighten the spline, adjust the screw using a 3/16" Allen wrench. The further in the screw is set the looser your outer connection will be. If the connection to your second piece of handrail needs to be more snug, reverse the screw out as necessary.

## 4. Secure Previous Sections

After installing the structural spline, go back and secure all previous sections by tightening the stationary post top set screws with a 1/8" Allen wrench.

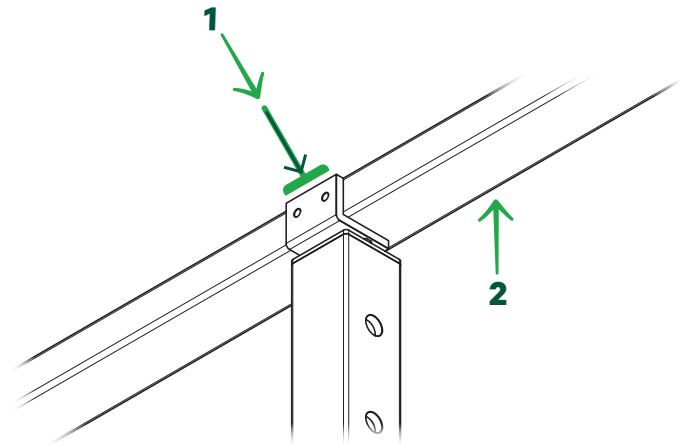
# Two-Way and Level Line Posts

Attach handrail to 2-way posts or level line posts.



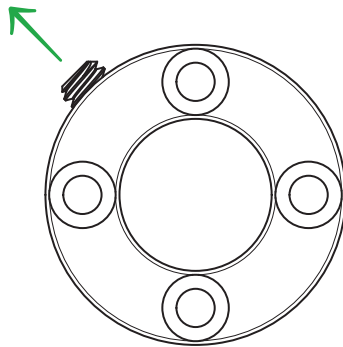
## 1. Position Handrail

Align the handrail over the 2-way or level line post as it will be installed.



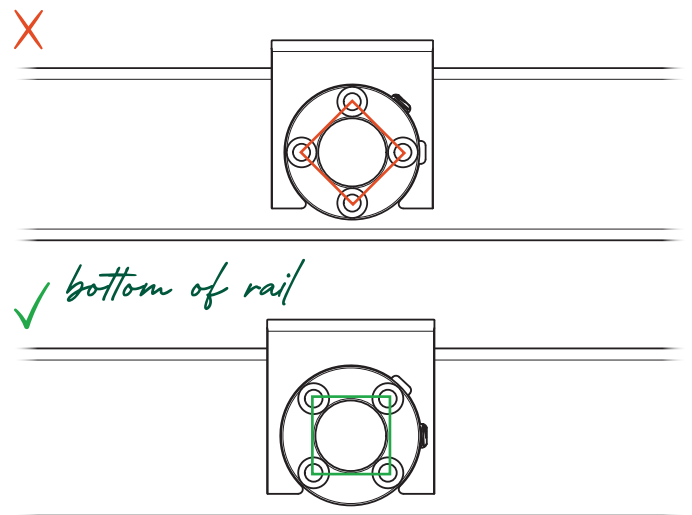
## 2. Find Post Top Location

Slip the Handrail Drill Guide and Template over the post top, clamp it in place, then remove the handrail from the posts.



## 3. Prepare Post Top

Remove the post top collar from the 2-way or level line post using a 1/8" Allen wrench, leaving the set screw slightly protruding to prevent the post top from rotating inside the template.



## 4. Position Post Top

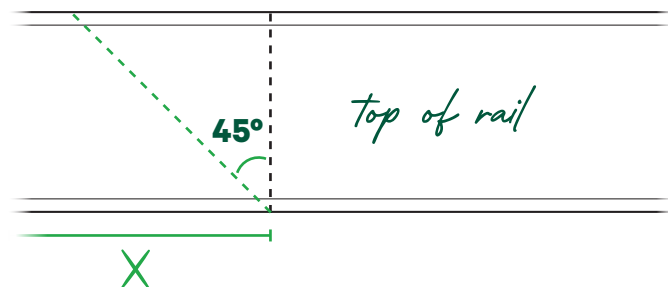
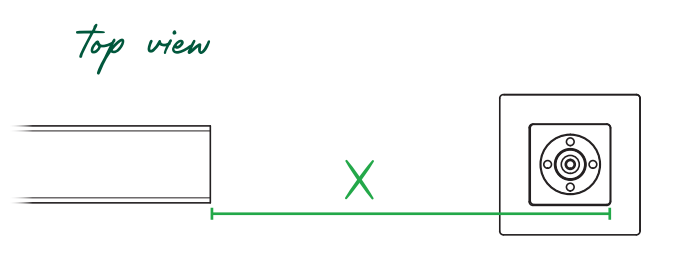
Insert the post top collar into the template and use the set screw cutouts to position the holes in a square formation rather than a diamond.

## 5. Attach Post Top

Continue to **Stationary Post Tops** instructions on page 35.

# Right-Angle Corner Transitions

Turn your handrail at a 90° corner.



## 1. Find Length

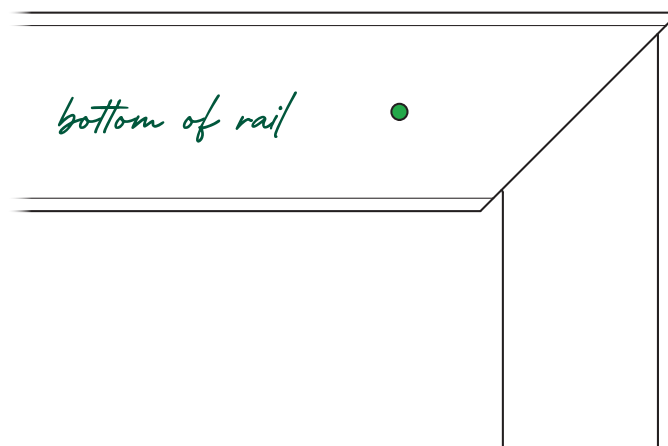
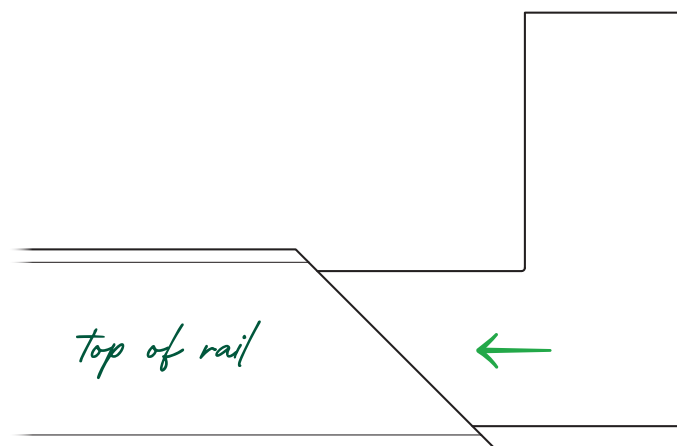
Find the length of your handrail by measuring to the far side of your corner post (X). Mark this length on a piece of handrail.

## 2. Mark Miter Cut

Based on this mark, use a speed square to draw a 45° angle for your miter cut.

## 3. Cut Handrail

Make a miter cut along this mark following the **Cutting Handrail** instructions on page 5.

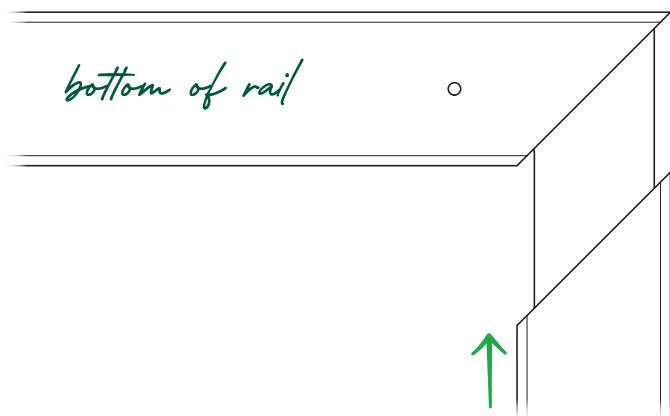


## 4. Insert Corner Spline

Slide a Fixed Corner Spline into the mitered handrail. Use a rubber mallet if needed to gently tap the spline into place.

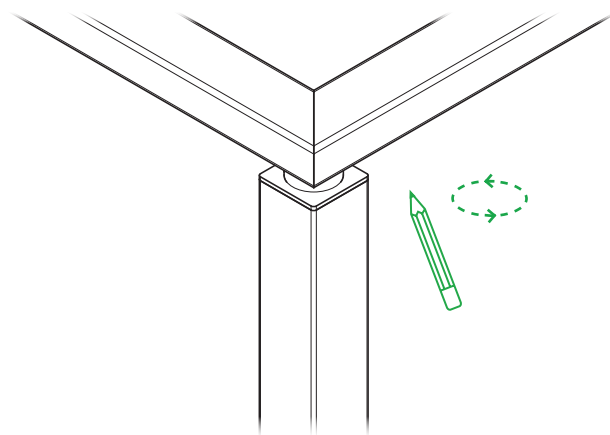
## 5. Secure Spline

On the underside of the handrail, secure the spline by drilling a 3/4" deep pilot hole using a 5/32" drill bit. Tap the hole with a 10-24 tap, and drive in a 10-24 x 1/2" set screw by hand using a 3/32" Allen wrench.



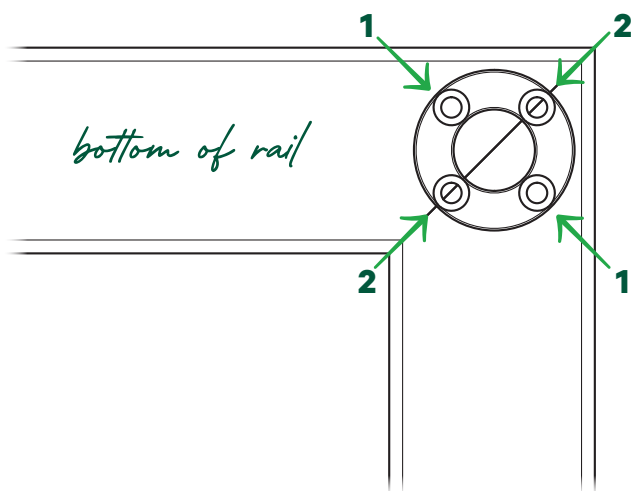
## 6. Flip and Fit Handrail

Flip the off-cut piece of handrail over and fit it to the installed spline to complete the corner. If the off-cut piece is shorter than one foot, cut a new piece of handrail at 45° to complete the transition. Secure by repeating step 5.



## 7. Align Handrail

Align the handrail assembly on the post as it will be installed and mark the location of the post top collar by tracing around it with a fine-point pencil. Remove your handrail and place it upside-down on your drilling surface.



## 8. Attach Post Top

Remove the post top collar from the corner post center pin using a 1/8" Allen wrench. Position the post top holes square to the corner and attach the screws through the corner spline in the order shown using the **Stationary Post Tops** instructions on page 35.

## 9. Fit to Handrail Run

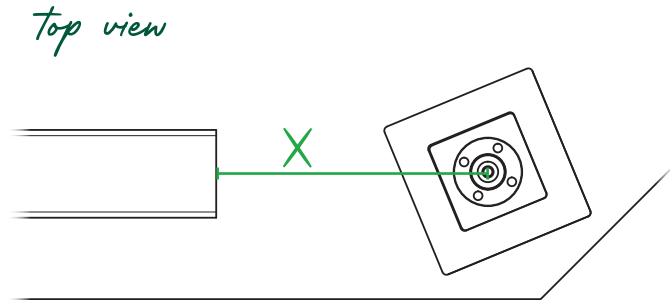
If necessary, fit the corner to the previous handrail run using the appropriate spline for your handrail material.

**For Aluminum Handrail:** Follow **Fixed Straight Spline** instructions on page 8.

**For Stainless Steel Handrail:** Follow **Structural Spline** instructions on page 9.

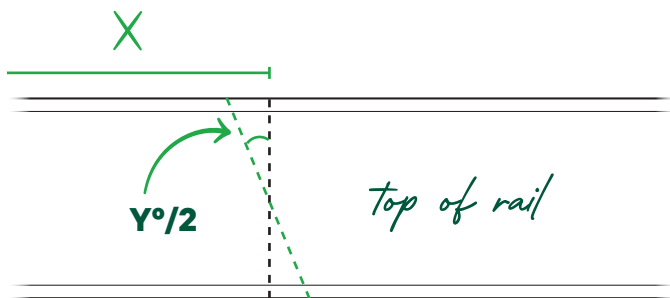
# Non-Right-Angle Corner Transitions

Turn your handrail at any obtuse corner (between 91°–179°.)



## 1. Find Length

Find the length of your handrail by measuring to the center of the post top on the corner post (X). Mark this length on a piece of handrail.

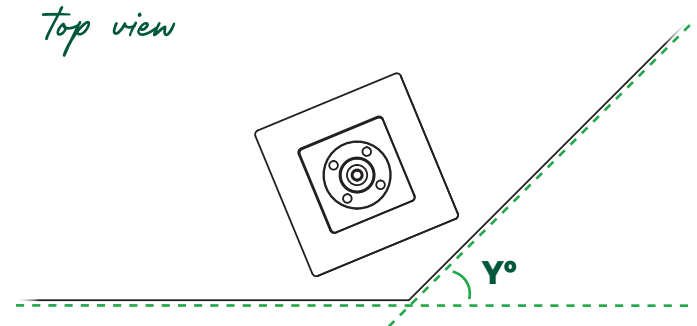


## 3. Mark Miter Cut

$Y^\circ/2$  will be the angle of your miter cut. Mark this angle on your handrail piece bisecting the mark you made in step 1.

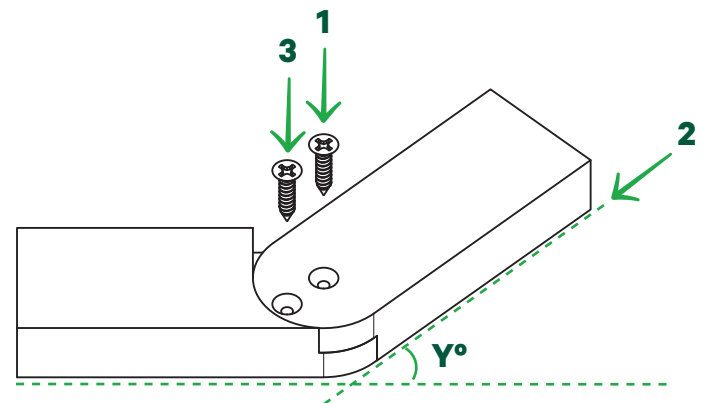
## 4. Cut Handrail

Make a miter cut along this mark following the **Cutting Handrail** instructions on page 5.



## 2. Determine Angle

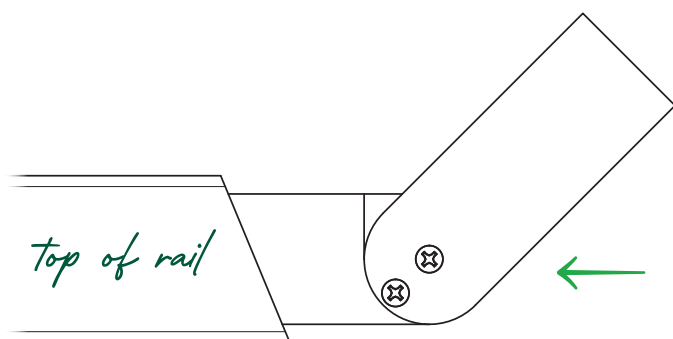
Determine the angle of your corner transition ( $Y^\circ$ ).



## 5. Assemble Spline

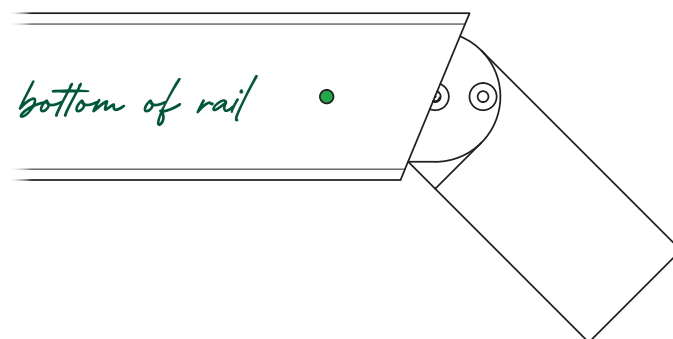
**For Aluminum Handrail:** Assemble the Adjustable Horizontal Corner Spline using one of the included #8 x 3/4" pan head screws and a Phillips head driver. Use an angle finder to set it to the angle of your corner transition ( $Y^\circ$ ), and lock it in place by driving the second #8 x 3/4" screw into the remaining pre-drilled hole.

**For Stainless Steel Handrail:** Use the instructions for **Custom Splines** on page 32 to create a custom spline matching the angle of your transition ( $Y^\circ$ ).



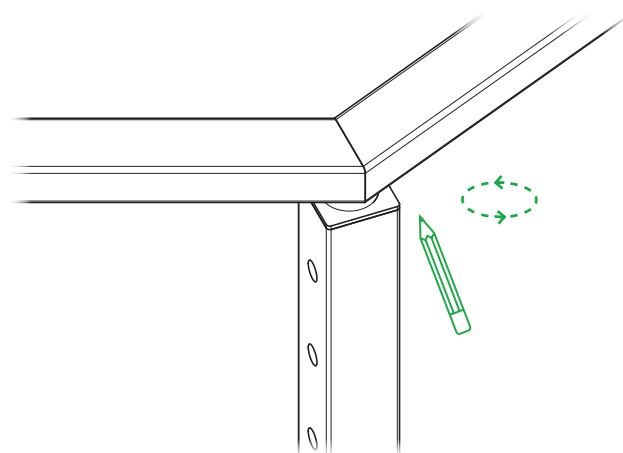
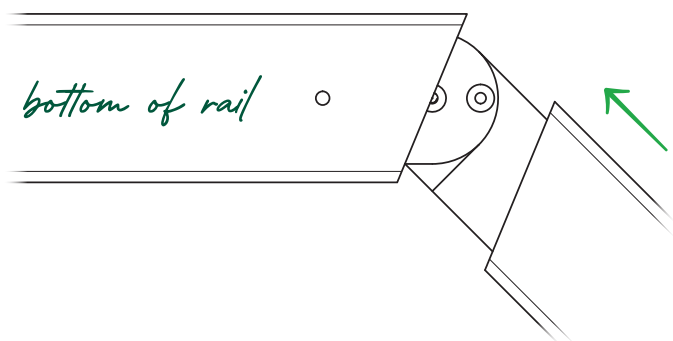
## 6. Insert Spline

Slide your spline into the mitered handrail. Use a rubber mallet if needed to gently tap the spline into place.



## 7. Secure Spline

On the underside of the handrail, drill a 3/4" deep pilot hole using a 5/32" drill bit, and tap the hole using the 10-24 tap. Drive in a 10-24 x 1/2" set screw by hand using a 3/32" Allen wrench.

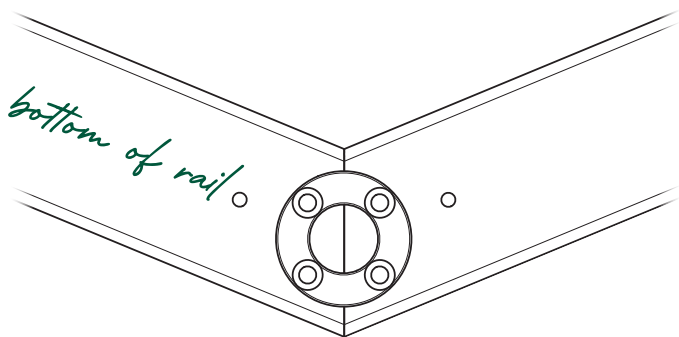


## 8. Flip and Fit Handrail

To complete your corner, flip the off-cut piece of handrail from your first miter cut over and fit it to the installed spline. If your off-cut piece is shorter than one foot, cut a new length of handrail at the same angle to complete the transition. *Secure by repeating step 7.*

## 9. Align Handrail

Align the handrail assembly on the post as it will be installed and mark the location of the post top collar by tracing around it with a fine-point pencil. Remove your handrail and place it upside-down on your drilling surface.



## 10. Attach Post Top

Remove the post top collar from the post center pin using a 1/8" Allen wrench. Position the post top holes as shown and attach the post top collar through the corner spline using the **Stationary Post Tops** instructions on *page 35*.

## 11. Fit to Handrail Run

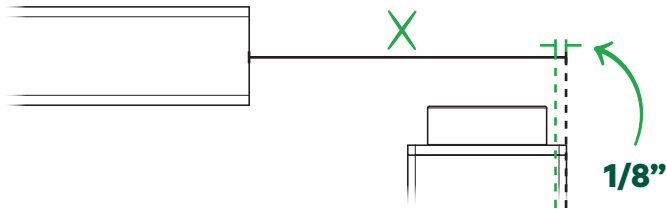
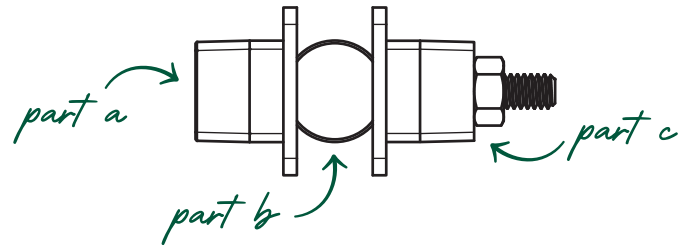
If necessary, fit your corner to the previous handrail run using the appropriate spline for your handrail material.

**For Aluminum Handrail:** Follow **Fixed Straight Spline** instructions on *page 8*.

**For Stainless Steel Handrail:** Follow **Structural Spline** instructions on *page 9*.

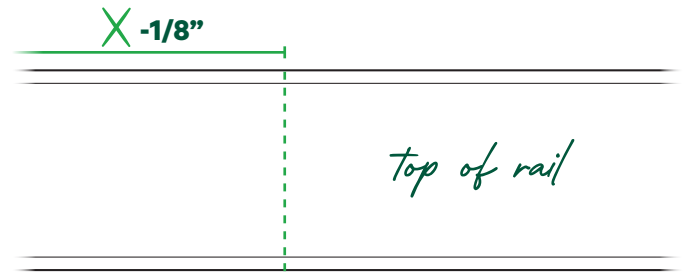
# Stair Transitions with Handrail Hinges

Transition your handrail up or down a set of stairs using a Handrail Hinge.



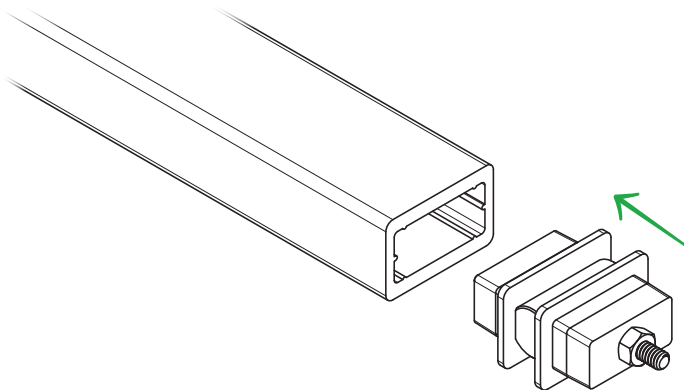
## 1. Find Length

Working from the level section towards the stair transition, find the length of your handrail by measuring to the far side of your post (X), then subtract 1/8". Mark this length on a piece of handrail.



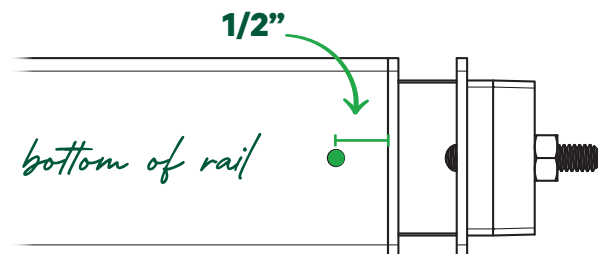
## 2. Cut Handrail

Make a straight cut at this location following the **Cutting Handrail** instructions on page 5.



## 3. Insert Hinge

Set your Handrail Hinge straight (180°) and lock it in place by tightening the nut using a 7/16" socket or wrench. Slide **part A** into your handrail ensuring the hinge pivots in the correct direction. The nut should be accessible. Use a rubber mallet if needed to gently tap the hinge into place.



## 4. Secure Hinge

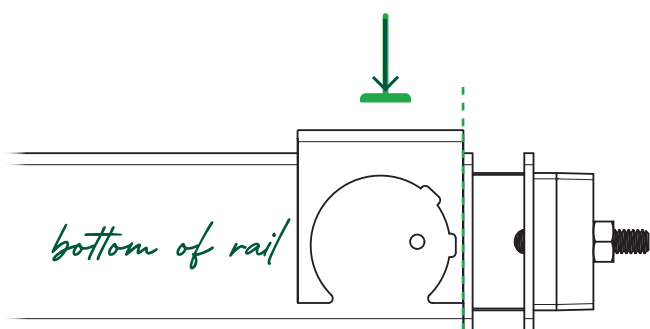
On the underside of the handrail, drill a pilot hole 1/2" from the cut of the handrail using a 5/32" drill bit.

**For Aluminum Handrail:** Drill 1" deep.

**For Stainless Steel Handrail:** Drill 3/4" deep.

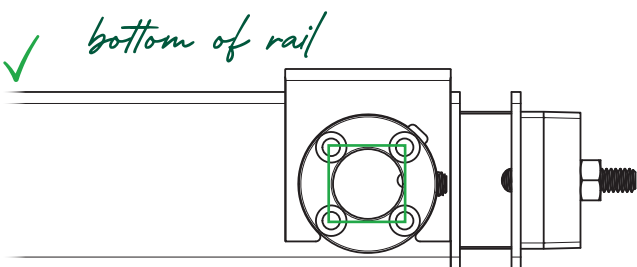
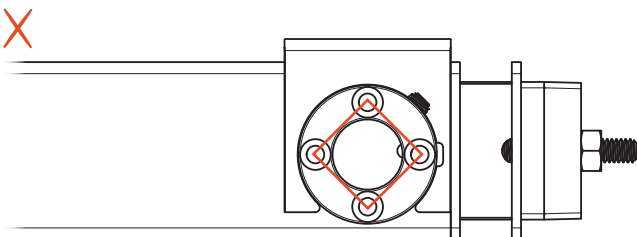
Tap the pilot hole using the 10-24 tap. Drive in a 10-24 x 1/2" set screw by hand using a 3/32" Allen wrench.





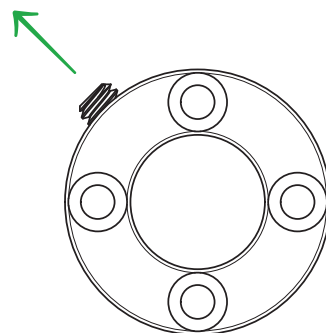
## 5. Find Post Top Location

Align the edge of the Handrail Drill Guide and Template flush with the cut of the handrail, then clamp it in place.



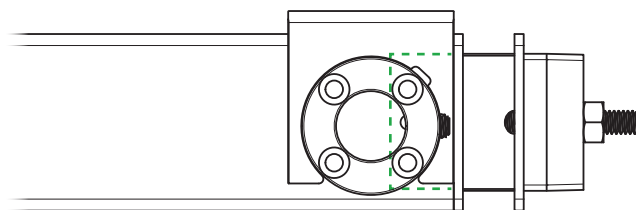
## 7. Position Post Top

Insert the post top collar into the template and use the set screw cutouts to position the holes in a square formation rather than a diamond.



## 6. Prepare Post Top

Remove the post top collar from the 2-way post center pin using a 1/8" Allen wrench, leaving the set screw slightly protruding to prevent the post top from rotating inside the template.



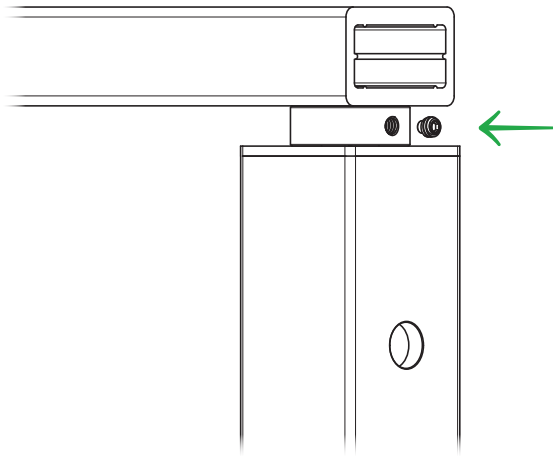
## 8. Attach Post Top

Follow the **Stationary Post Tops** instructions on page 35. Please note that 2 of your Handrail Mounting Screws will be installed into the Hinge plug, requiring deeper pilot holes.

If necessary, fit your handrail to the previous run using the appropriate spline for your handrail material.

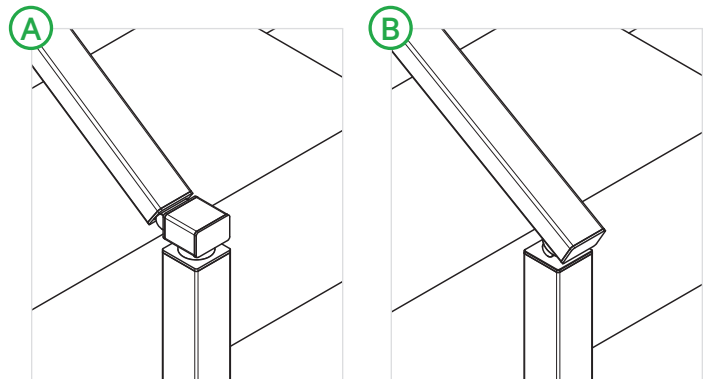
**For Aluminum Handrail:** Follow **Fixed Straight Spline** instructions on page 8.

**For Stainless Steel Handrail:** Follow **Structural Spline** instructions on page 9.



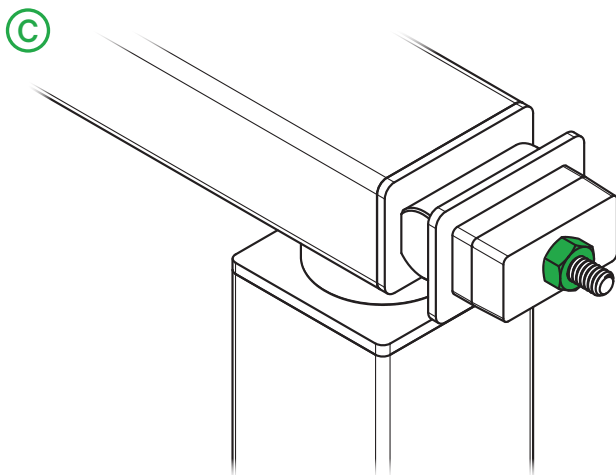
## 9. Secure Post Top

Secure the stationary post top collar to the center pin on the 2-way post by driving in the set screw with a 1/8" Allen wrench.



If using Handrail Hinges for Stair Ends (A) to complete your stair handrail, follow the **Stair Ends with Handrail Hinges** instructions on page 29.

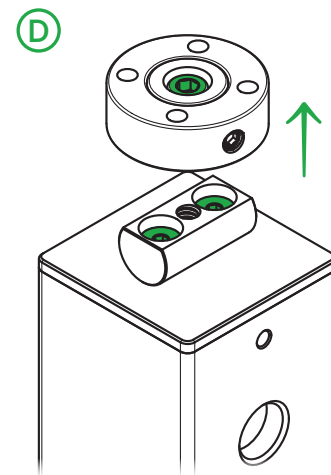
If you are using **Bottom of Stair Pivot Top End Posts** (B), continue to step 10.



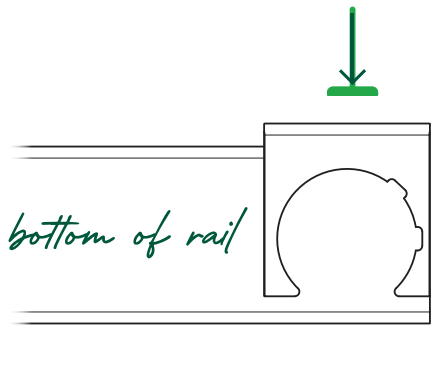
## 10. Prepare Hinge and Bottom of Stair Post

Ensure the Pivot Top on the Bottom of Stair End Post pivots in the proper direction. Adjust the tension of the Hinge and Pivot Top to allow for adjustment. Both joints should be loose enough to pivot but tight enough to remain in place when released.

**To Adjust Hinge Tension (C):** Tighten or loosen the nut on hinge **part C**.

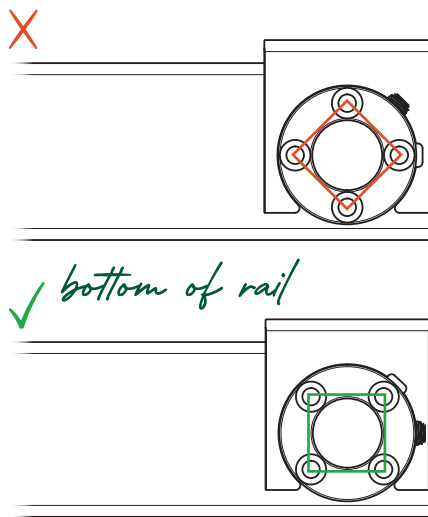


**To Adjust Pivot Top Tension (D):** Remove the post top collar and center pin as a unit by removing the center pin screw using a 3/16" Allen wrench. Use a 1/8" Allen wrench to tighten or loosen the pivot joint, then reattach the post top collar and center pin.



### 11. Find Bottom Post Top Location

Align the edge of the Handrail Drill Guide and Template flush with the end of a new length of handrail and clamp it in place.

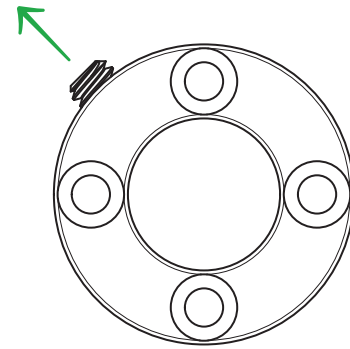


### 13. Position Post Top

Insert the post top collar into the template and use the set screw cutouts to position the holes in a square formation rather than a diamond.

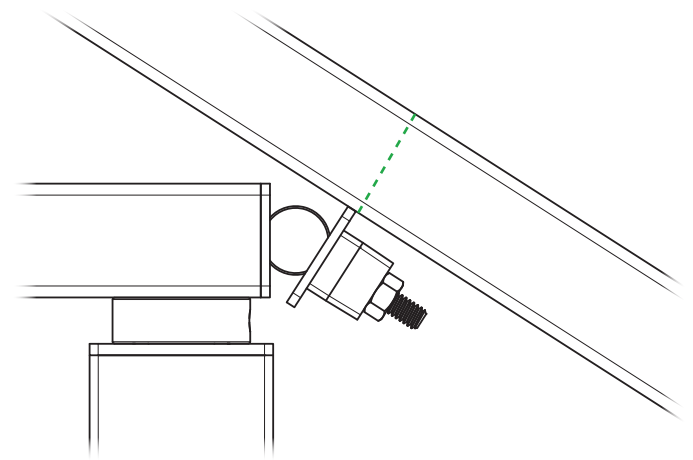
### 14. Attach Post Top

Continue to **Stationary Post Tops** instructions on page 35.



### 12. Prepare Post Top

Remove the post top collar from the Bottom of Stair Post center pin using a 1/8" Allen wrench, leaving the set screw slightly protruding to prevent the post top from rotating inside the template.

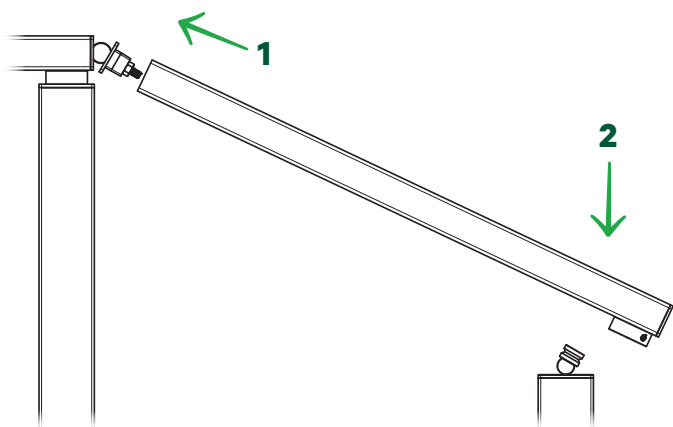


### 15. Mark Handrail Length

Place the Bottom of Stair post top collar back onto the center pin and align the handrail over **part C** of the Hinge at the top of your stair run. Mark the handrail where it meets the inside of the Hinge rim at the top of your stair. This will be your cutting location.


### 16. Cut Handrail

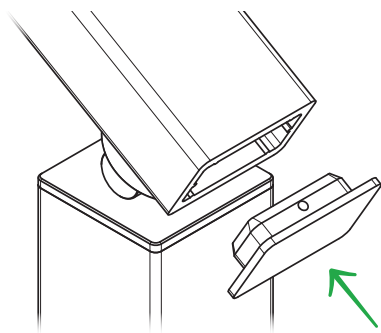
Make a straight cut at this location following the **Cutting Handrail** instructions on page 5.




## 17. Assemble Stair Rail

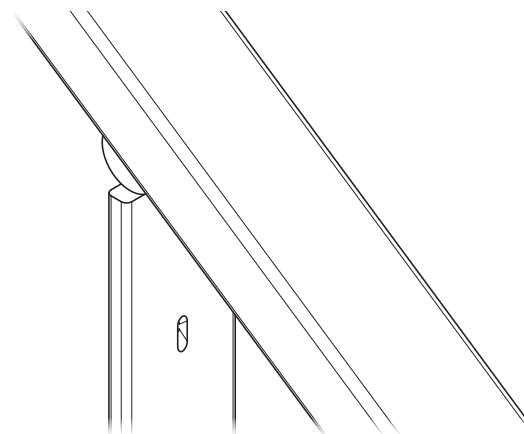
Slide the stair handrail onto the Handrail Hinge at the top of the run. Lock it in place by fitting the Bottom of Stair post top collar back onto the center pin and driving in the set screw using a 1/8" Allen wrench.

 **PRO TIP:** For more stability in your Hinge connection at the top of your stairs, install a set screw into the side of your handrail here, the same as you did in *step 4*.



## 19. Slide in your end cap.

 **PRO TIP:** If using Stainless Steel Handrail and the end cap has a loose fit, apply a thin bead of clear, exterior-grade silicone caulk or sealant to both long, interior sides of the end cap before inserting. Wipe away any excess caulk and use painter's tape to hold it in place until dry.

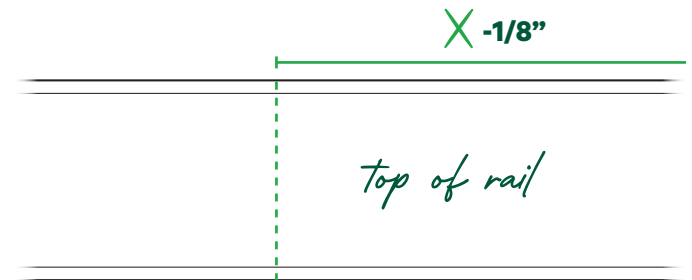
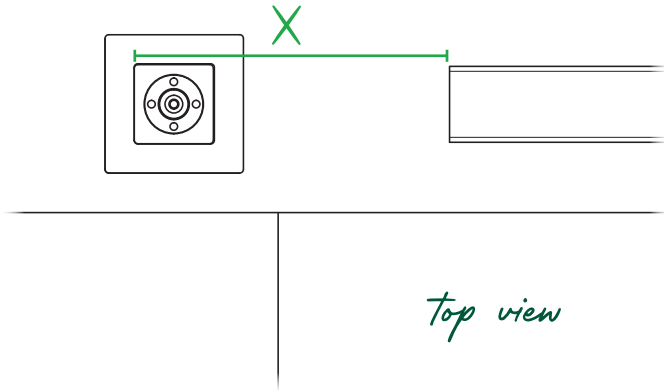
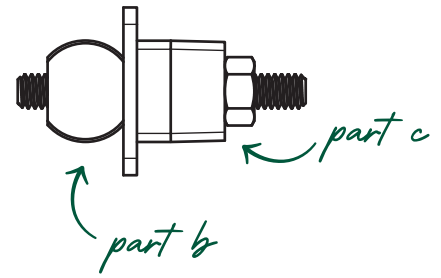


## 18. Secure All Line Post Tops

If your stair run has line posts, continue to **Line Post Tops for Stair Runs** instructions on *page 34* to secure them to your handrail.

# Stair Corners with Handrail Hinges

Transition your handrail around a 90° corner and immediately up or down a set of stairs using a Handrail Hinge.

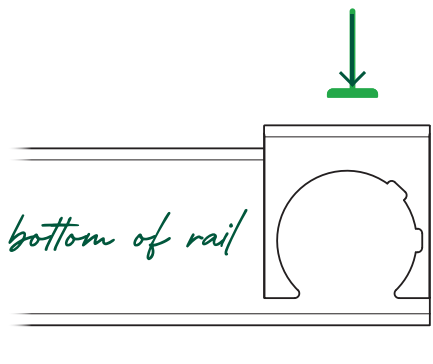


## 1. Find Length

Working from the level section towards the stair transition, find the length of your handrail by measuring to the far side of your corner post (X), then subtract 1/8". Mark this length on a piece of handrail.

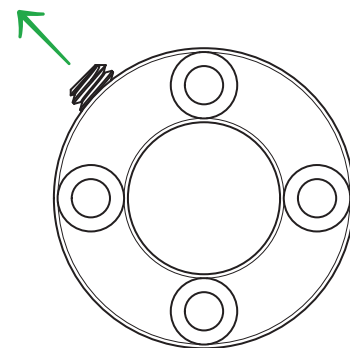
## 2. Cut Handrail

Make a straight cut at this location following the **Cutting Handrail** instructions on page 5.



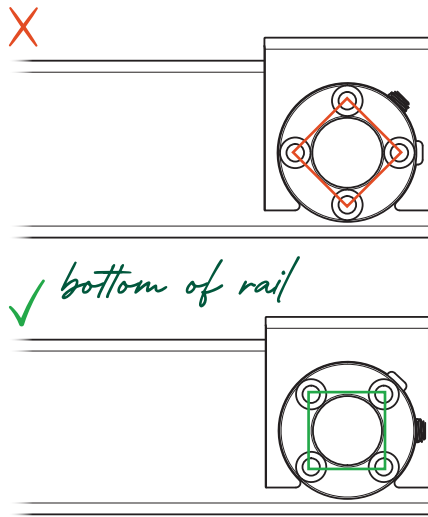
## 3. Find Post Top Location

Align the edge of the Handrail Drill Guide and Template flush with the end of your piece of handrail and clamp it in place.



## 4. Prepare Post Top

Remove the post top collar from the corner post center pin using a 1/8" Allen wrench, leaving the set screw slightly protruding to prevent the post top from rotating inside the template.

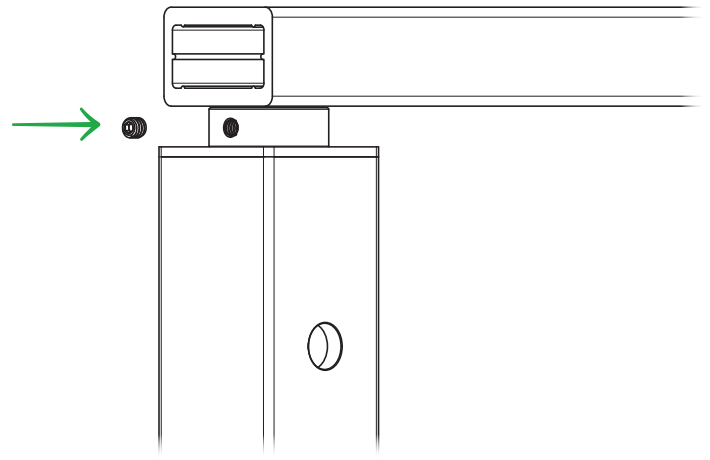


## 5. Position Post Top

Insert the post top collar into the template and use the set screw cutouts to position the holes in a square formation rather than a diamond.

## 6. Attach Post Top

Continue to **Stationary Post Tops** instructions on page 35.



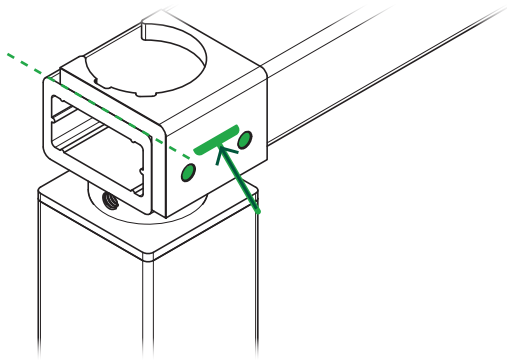
## 7. Fit to Handrail Run and Secure

If necessary, fit your handrail to the previous run using the appropriate spline for your handrail material.

**For Aluminum Handrail:** Follow **Fixed Straight Spline** instructions on page 8.

**For Stainless Steel Handrail:** Follow **Structural Spline** instructions on page 9.

Secure the stationary post top collar to the center pin on the corner post by driving in the set screw with a 1/8" Allen wrench.

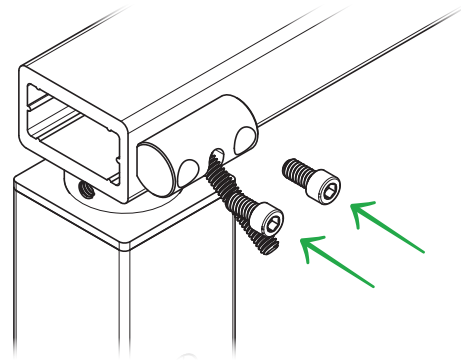


## 8. Find Hinge Location

Clamp the drill guide to the stair-facing side of your handrail with the edge flush with your straight cut and the post top template sitting on top of the handrail.

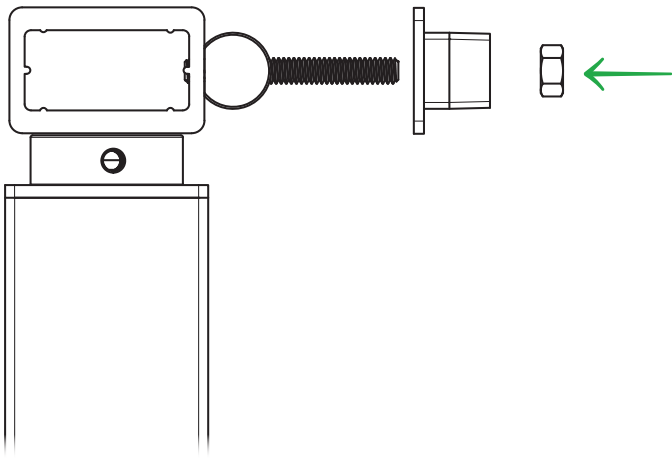
## 9. Drill and Tap

Drill two pilot holes through the drill guide using a 7/32" drill bit. Tap both holes using a 1/4-20 tap.



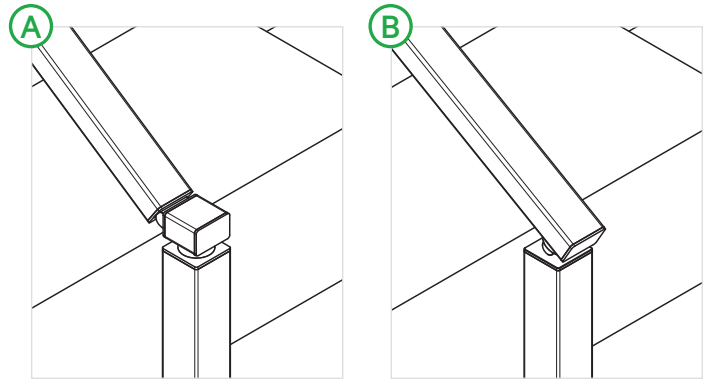
## 10. Attach Hinge

Align the flat side of Hinge **part B** to the side of your handrail making sure the protruding screw pivots in the correct direction. Attach by driving in two 1/4-20 x 1/2" socket head cap screws using a 3/16" Allen wrench.



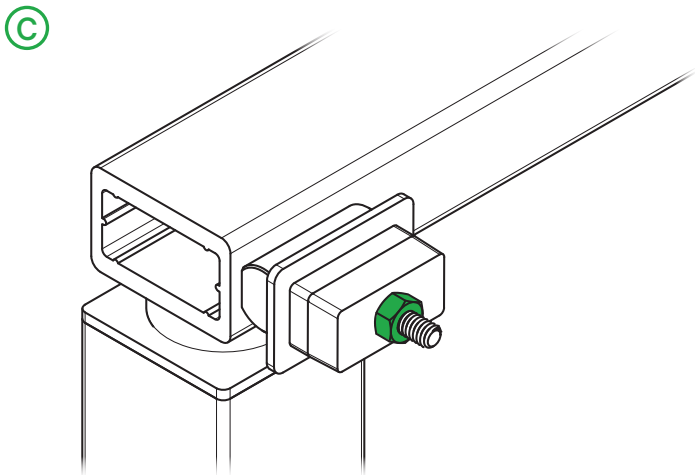
## 11. Assemble Hinge

Insert the pivoting screw into Hinge **part C** so that part B fits into the curved bed. Loosely secure with the nut.



If using Handrail Hinges for Stair Ends **(A)** to complete your stair handrail, follow the **Stair Ends with Handrail Hinges** instructions on *page 29*.

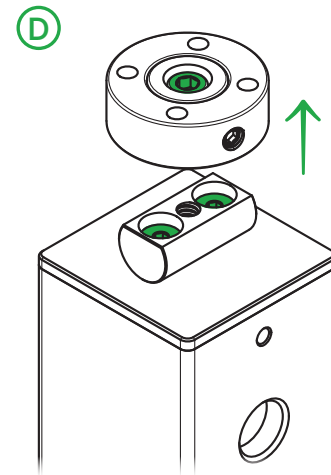
If you are using **Bottom of Stair Pivot Top End Posts (B)**, continue to *step 12*.



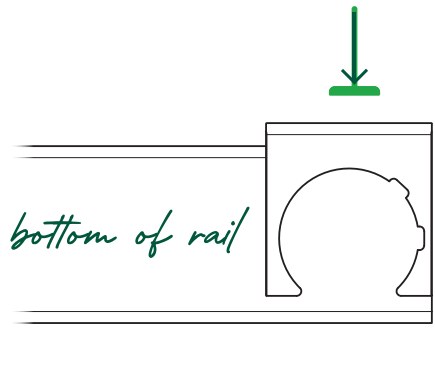
## 12. Prepare Hinge and Bottom of Stair Post

Ensure the Pivot Top on the Bottom of Stair End Post pivots in the proper direction. Adjust the tension of the Hinge and Pivot Top to allow for adjustment. Both joints should be loose enough to pivot but tight enough to remain in place when released.

**To Adjust Hinge Tension (C):** Tighten or loosen the nut on hinge **part C**.

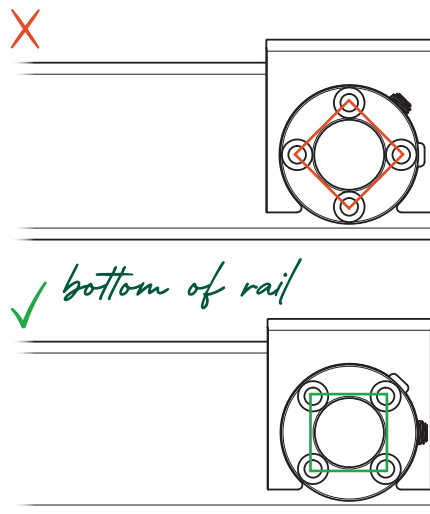


**To Adjust Pivot Top Tension (D):** Remove the post top collar and center pin as a unit by removing the center pin screw using a 3/16" Allen wrench. Use a 1/8" Allen wrench to tighten or loosen the pivot joint, then reattach the post top collar and center pin.



### 13. Find Bottom Post Top Location

Align the edge of the Handrail Drill Guide and Template flush with the end of a new length of handrail and clamp it in place.

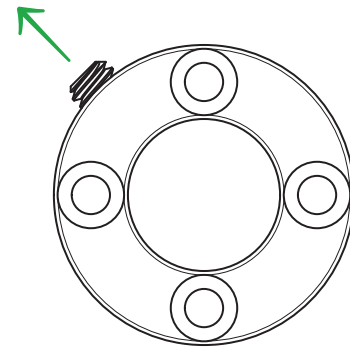


### 15. Position Post Top

Insert the post top collar into the template and use the set screw cutouts to position the holes in a square formation rather than a diamond.

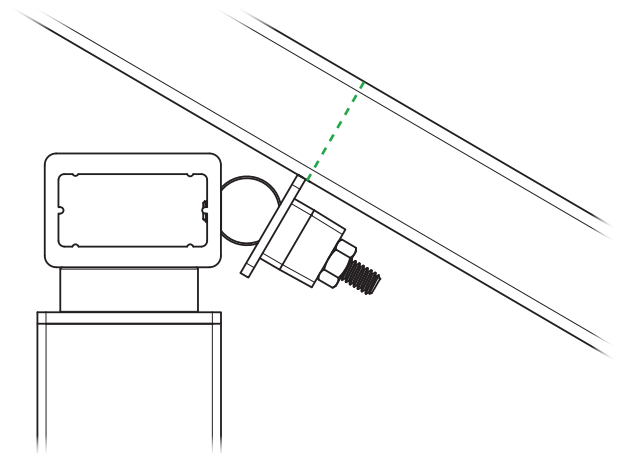
### 16. Attach Post Top

Continue to **Stationary Post Tops** instructions on page 35.



### 14. Prepare Post Top

Remove the post top collar from the Bottom of Stair Post center pin using a 1/8" Allen wrench, leaving the set screw slightly protruding to prevent the post top from rotating inside the template.



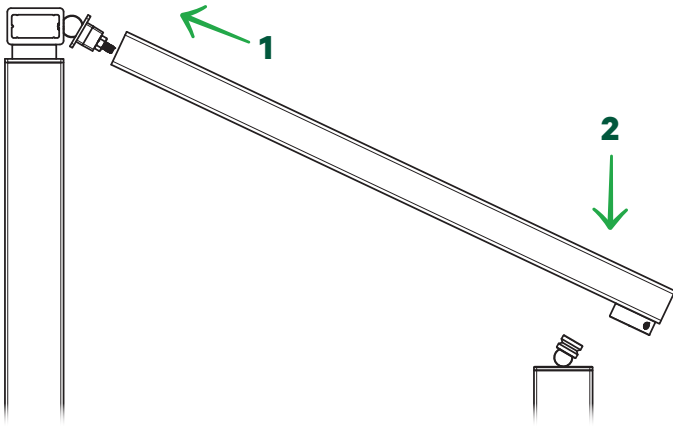
### 17. Mark Handrail Length

Place the Bottom of Stair post top collar back onto the center pin and align the handrail over **part C** of the Hinge at the top of your stair run. Mark the handrail where it meets the inside of the Hinge rim at the top of your stair. This will be your cutting location.

### 18. Cut Handrail


Make a straight cut at this location following the **Cutting Handrail** instructions on page 5.

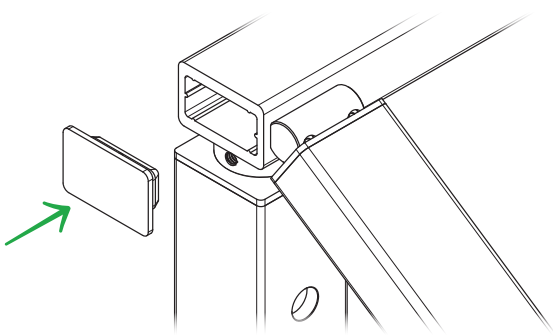





## 19. Assemble Stair Rail

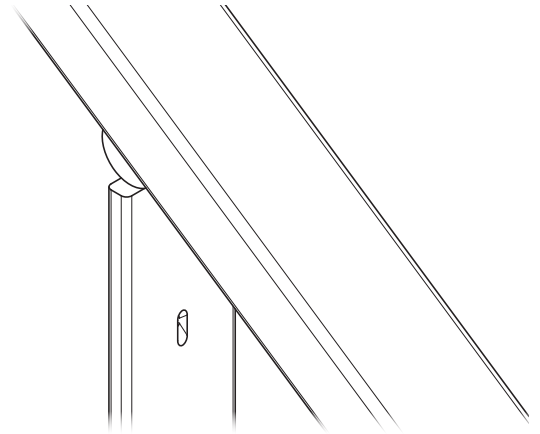
Slide the stair handrail onto the Handrail Hinge at the top of the run. Lock it in place by fitting the Bottom of Stair post top collar back onto the center pin and driving in the set screw using a 1/8" Allen wrench.

 **PRO TIP:** For more stability in your Hinge connection at the top of your stairs, install a set screw into the side of your handrail here by drilling a 5/32" hole 1" deep for Aluminum Handrail or 3/4" deep for Stainless Steel Handrail, tapping it with a 10-24 tap, and driving in a 10-24 x 1/2" set screw using a 3/32" Allen wrench.



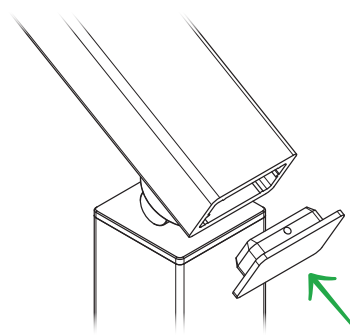
## 21. Slide in your end caps.

 **PRO TIP:** If using Stainless Steel Handrail and the end caps have a loose fit, apply a thin bead of clear, exterior-grade silicone caulk or sealant to both long, interior sides of each end cap before inserting. Wipe away any excess caulk and use painter's tape to hold them in place until dry.



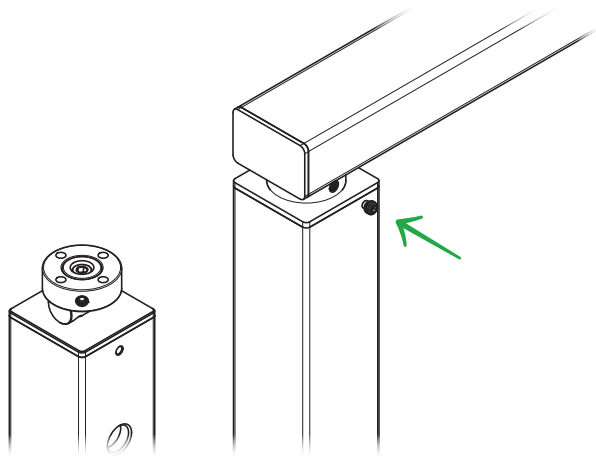
## 20. Secure All Line Post Tops

If your stair run has line posts, continue to **Line Post Tops for Stair Runs** instructions on *page 34* to secure them to your handrail.



# Stair Corners with 2-Post Configurations

Create a 2-post stair transition by terminating your level handrail and running your stair rail using Top of Stair and Bottom of Stair End Posts.



## 1. Terminate Level Handrail

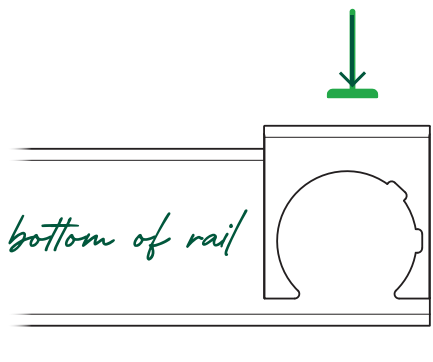
Follow **Level Terminal Posts** instructions on page 6 to complete your level rail.

If necessary, fit your handrail to the previous run using the appropriate spline for your handrail material.

**For Aluminum Handrail:** Follow **Fixed Straight Spline** instructions on page 8.

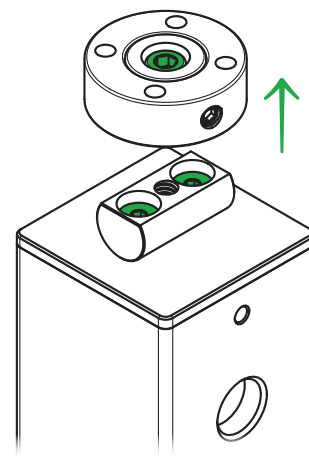
**For Stainless Steel Handrail:** Follow **Structural Spline** instructions on page 9.

Secure your stationary post top collar to the center pin on the level end post by driving in the set screw with a 1/8" Allen wrench.



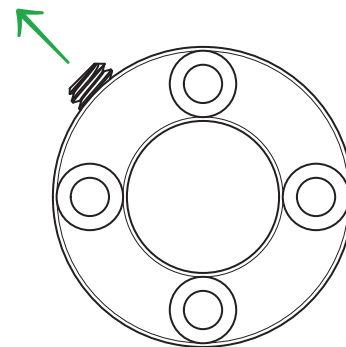
## 3. Find Bottom Post Top Location

Align the edge of the Handrail Drill Guide and Template flush with the end of a new length of handrail and clamp it in place.



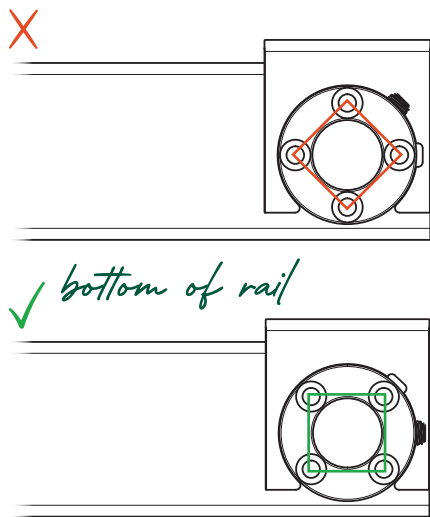
## 2. Prepare Pivot Tops

Ensure both Pivot Tops on the Stair End Posts pivot in the correct direction. Adjust the tension of the Pivot Tops to allow for adjustment. To do this remove the post top collar and center pin as a unit by removing the center pin screw with a 3/16" Allen wrench. Use a 1/8" Allen wrench to tighten or loosen the pivot joint. Reattach the post top collar and center pin. Both joints should be loose enough to pivot but tight enough to remain in place when released.



## 4. Prepare Bottom Post Top

Remove the post top collar from the Bottom of Stair Post center pin using a 1/8" Allen wrench, leaving the set screw slightly protruding to prevent the post top from rotating inside the template.

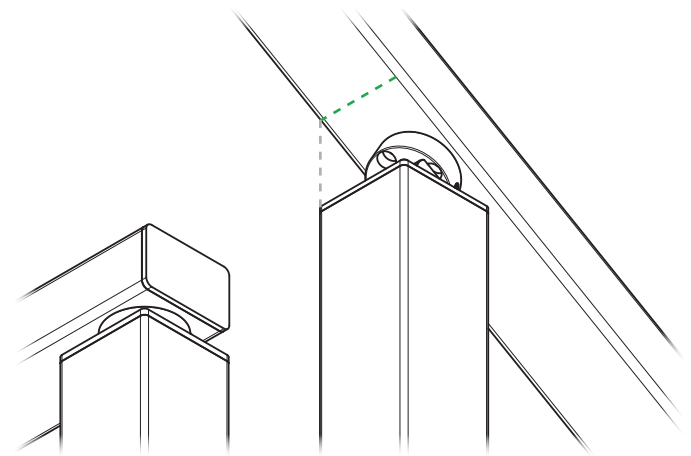


## 5. Position Bottom Post Top

Insert the post top collar into the template and use the set screw cutouts to position the holes in a square formation rather than a diamond.

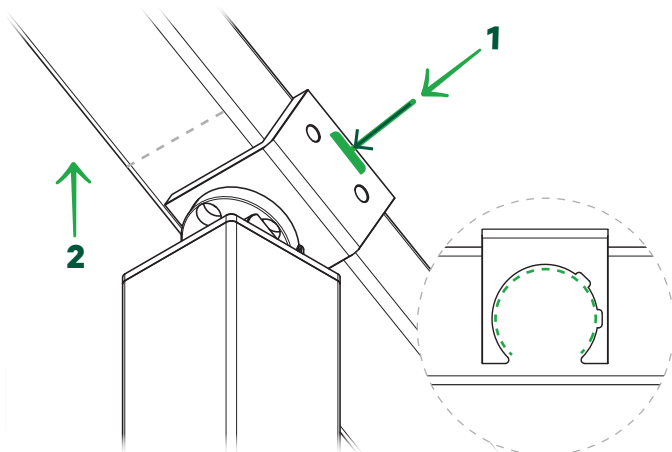
## 6. Attach Bottom Post Top

Continue to **Stationary Post Tops** instructions on page 35.



## 7. Mark Top Handrail Length

Place the Bottom of Stair post top collar back onto the center pin and align the handrail over the Top of Stair Post. Use a straightedge and a speed square to mark the underside of the handrail where it intersects the rear face of the Top of Stair post. This will be your cutting location.



## 8. Trace Post Top Location

Transfer the Handrail Drill Guide and Template to the Top of Stair Pivot Top, clamp it in place, and remove the handrail from the posts. Trace the location of the post top using the inside of the Handrail Drill Guide and Template as a guide.

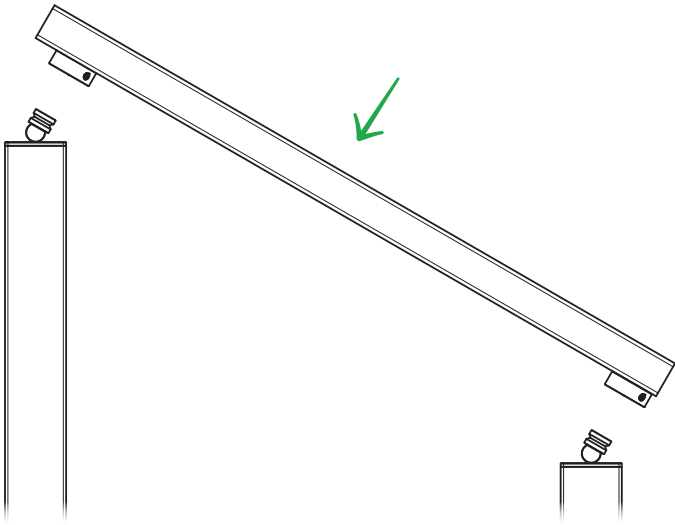


## 9. Cut Handrail

Make a straight cut at the location found in step 7 by following the **Cutting Handrail** instructions on page 5.

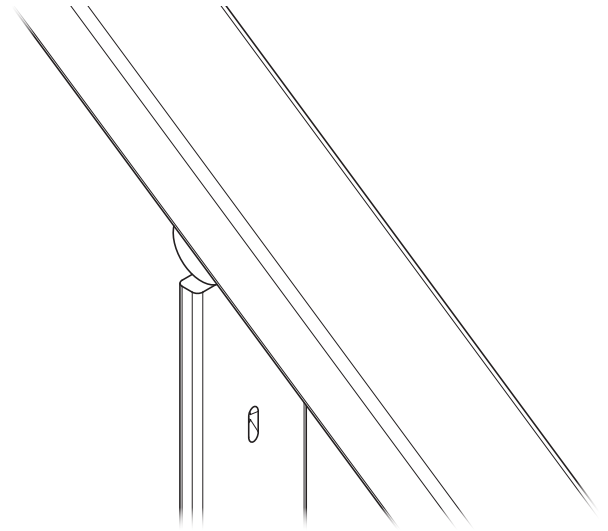
## 10. Attach Top Post Top

Clamp the Handrail Drill Guide and Template in place at the location marked in step 8 and repeat steps 4–6 to attach the Top of Stair post top.



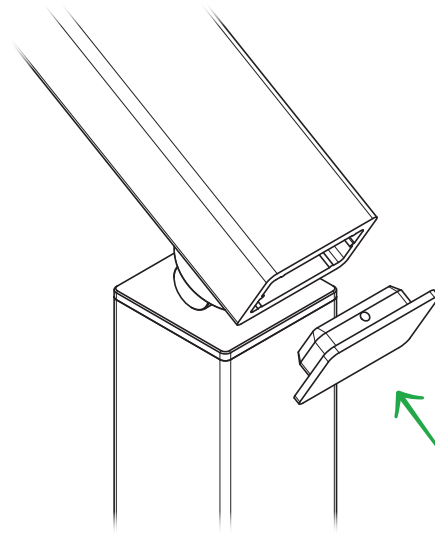
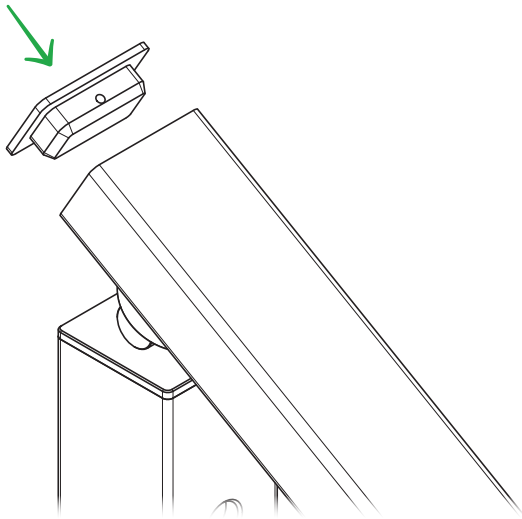
### 11. Assemble Stair Rail

Place the stair rail back onto your Pivot Top posts by fitting the post top collars onto the center pins and lock them in place by driving in the set screws with a 1/8" Allen wrench.




### 12. Secure All Line Post Tops

If your stair run has line posts, continue to **Line Post Tops for Stair Runs** instructions on *page 34* to secure them to your handrail.

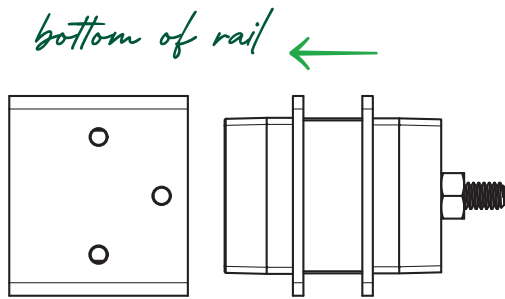


### 13. Slide in your end caps.

 **PRO TIP:** If using Stainless Steel Handrail and the end caps have a loose fit, apply a thin bead of clear, exterior-grade silicone caulk or sealant to both long, interior sides of each end cap before inserting. Wipe away any excess caulk and use painter's tape to hold them in place until dry.

# Stair Ends with Handrail Hinges

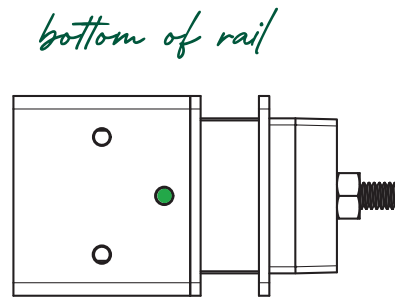
Complete your stair handrail over the final end post of a stair run using a Handrail Hinge.



## 1. Insert Hinge

Set a Handrail Hinge straight (180°) and lock it in place by tightening the nut using a 7/16" socket or wrench.

Slide Hinge **part A** into the pre-cut and drilled stair end, ensuring the Hinge pivots in the correct direction and the pre-drilled (un-threaded) hole overlaps the plug of the Hinge. The nut should be accessible.



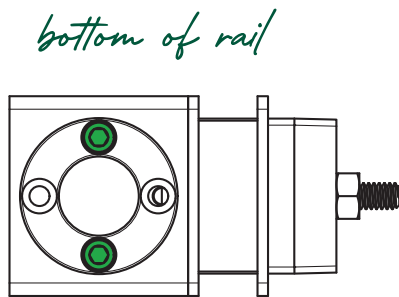
## 2. Secure Hinge and Drill Hole

Extend the pilot hole into the Hinge plug using a 5/32" drill bit.

**For Aluminum Handrail:** Drill 1" deep.

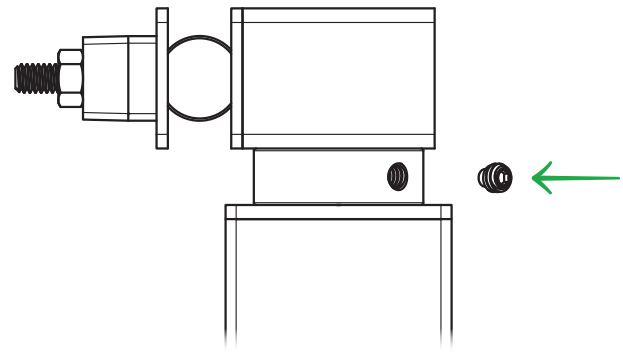
**For Stainless Steel Handrail:** Drill 3/4" deep.

Tap the pilot hole using the 10-24 tap and drive in a 10-24 x 1/2" set screw by hand using a 3/32" Allen wrench.



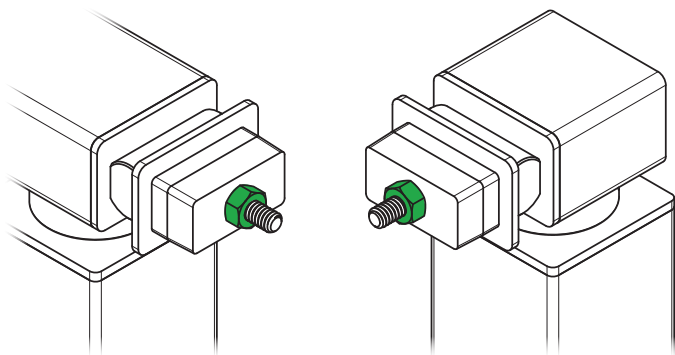
## 3. Attach Post Top

Remove the post top collar from the end post center pin using a 1/8" Allen wrench. Attach the post top collar to the stair end by driving two Handrail Mounting Screws into the two pre-tapped holes using a 5/32" driver.



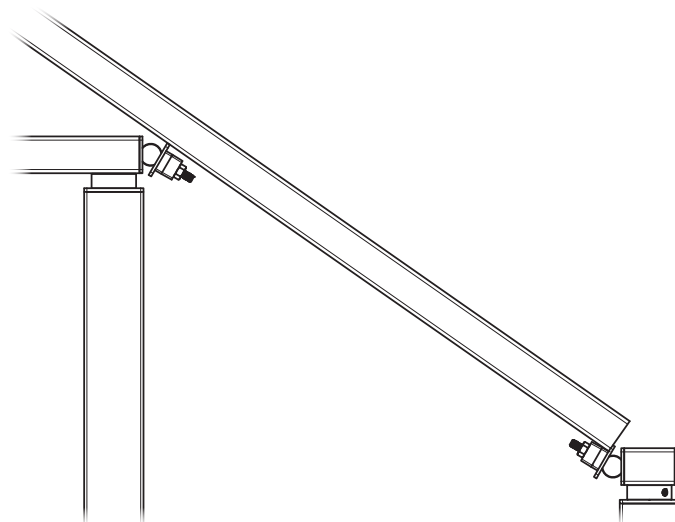
## 5. Temporarily Secure Stair End to Post

Secure the stair end assembly to the post by driving in the post top set screw using a 1/8" Allen wrench. You will need to remove the stair end later in order to assemble your full stair rail.



## 5. Prepare Hinges

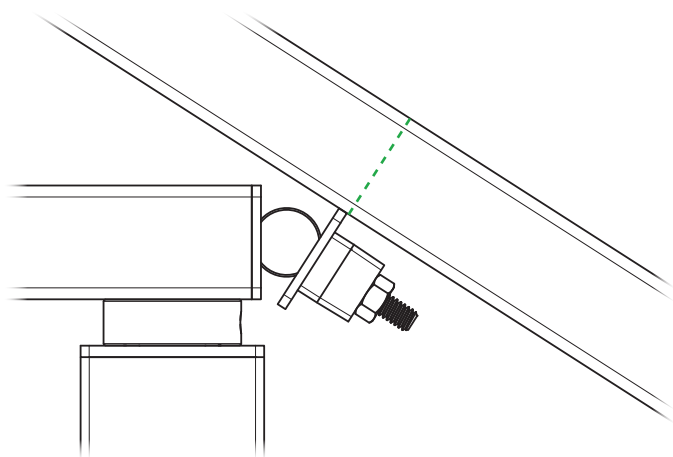
Adjust the tension of both Hinges to allow for adjustment by tightening or loosening the nut on Hinge **part C**. Both joints should be loose enough to pivot but tight enough to remain in place when released.



## 6. Position Stair Handrail

Place a new length of handrail on top of **part C** of the bottom Hinge with the handrail end butted up against the rim.

If necessary, spline additional lengths of handrail together using a Fixed Straight Spline (page 8) or Structural Spline (page 9) in order to reach the end of your stair run.

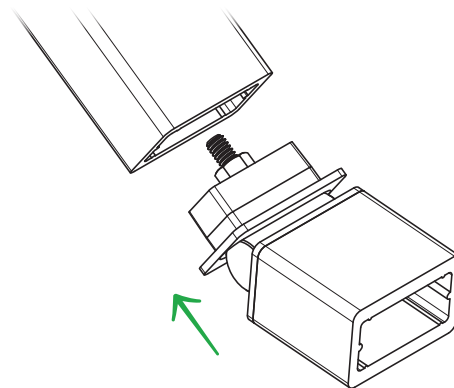


## 7. Mark Handrail Length

Mark the handrail where it meets the inside of the Hinge rim at the top of your stairs. This will be your cutting location.


## 8. Cut Handrail

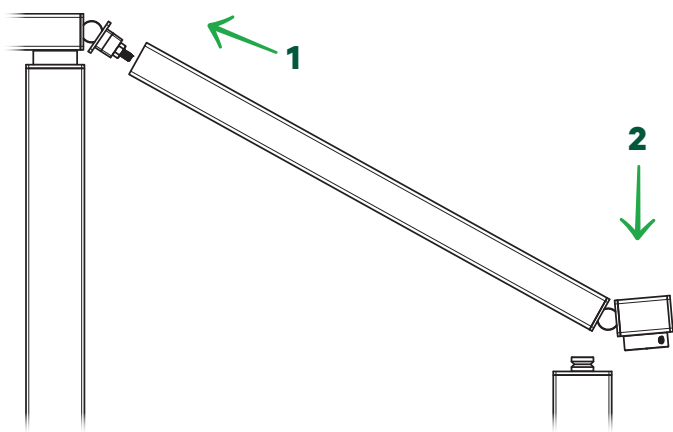
Make a straight cut at this location following the **Cutting Handrail** instructions on page 5.



## 9. Insert Stair End

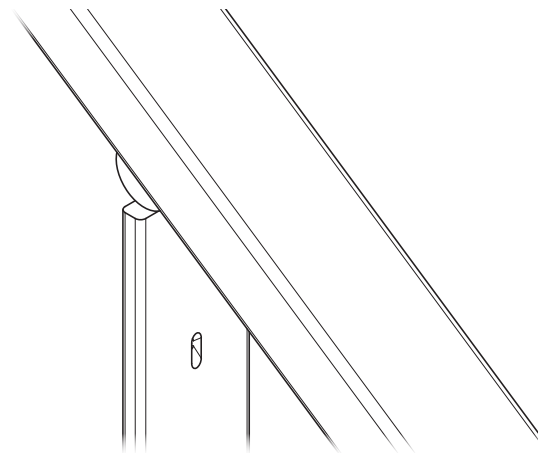
Remove the stair end assembly from the post, and slide one end of the handrail over Hinge **part C** of the stair end.

 **PRO TIP:** For more stability in your connection, install a set screw underneath or into the side of your handrail the same as you did in step 2.



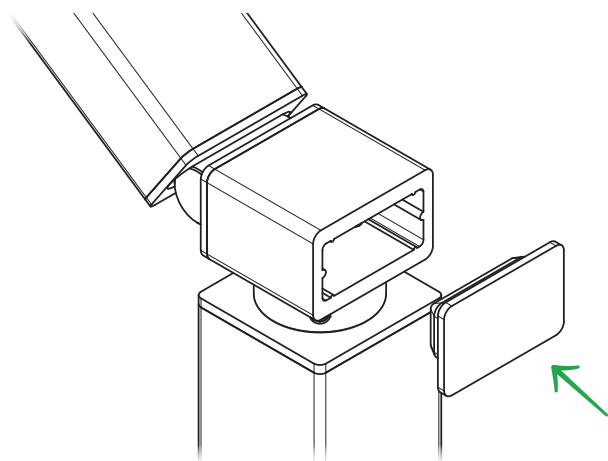
## 10. Assemble Stair Rail

Slide the handrail and stair end assembly onto the Handrail Hinge at the top of the run. Lock it in place by fitting the stair end post top collar onto the center pin and driving in the set screw using a 1/8" Allen wrench.




## 11. Secure All Line Post Tops

If your stair run has line posts, continue to **Line Post Tops for Stair Runs** instructions on *page 34* to secure them to your handrail.



## 12. Slide in your end cap.

 **PRO TIP:** If using Stainless Steel Handrail and the end cap has a loose fit, apply a thin bead of clear, exterior-grade silicone caulk or sealant to both long, interior sides of the end cap before inserting. Wipe away any excess caulk and use painter's tape to hold it in place until dry.

# Custom Splines

Build custom splines to connect handrail at any non-standard corner and/or vertical transition.

## tools

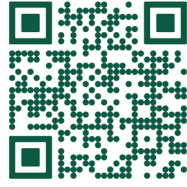
- 3/8" drill bit
- 5/32" drill bit\*
- 1/8" drill bit
- Quick clamps
- Tape measure

(Drill bit sizes may vary based on your screws)

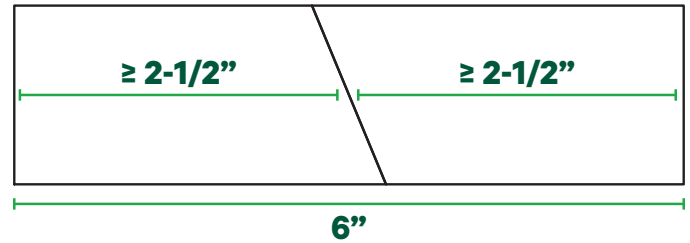
## supplies

- 2-1/2" deck screws
- Spline Stock\*
- High-tack painter's tape

\*available at cablebullet.com



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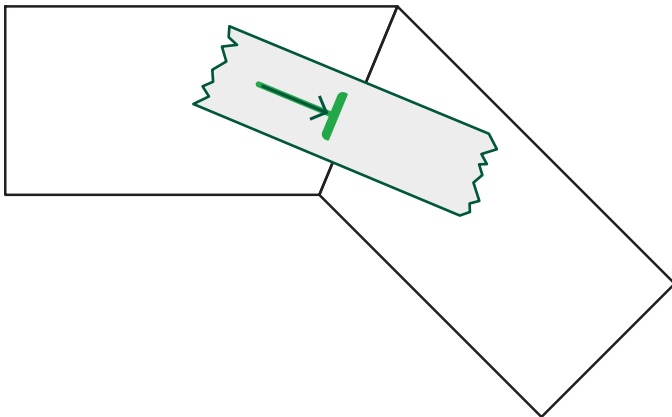


### 1. Cut Spline Stock Length

Cut a length of spline stock at least 6" long (or longer if your spline requires).

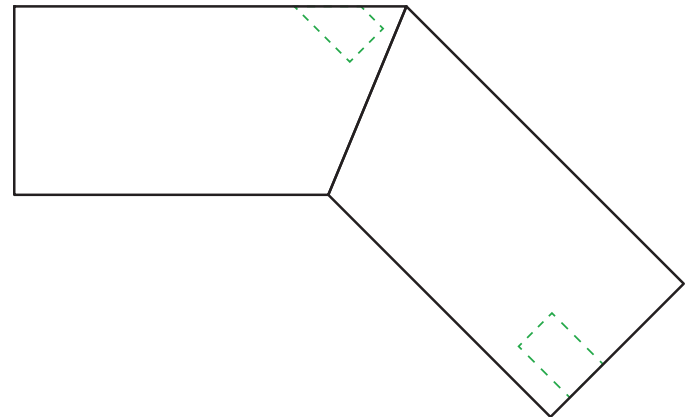
### 2 Make Miter/Bevel Cut

Cut this piece of spline stock in half with a miter or bevel cut (depending on your transition) that is half of the total angle of your transition ( $Y^\circ/2$ ). Ensure each half has at least 2-1/2" of material to accommodate the 2-1/2" screws.



### 3. Flip and Secure

Flip over one of the halves and secure the two pieces tightly using high-tack tape on both the top and the bottom. Clamp at the seam.



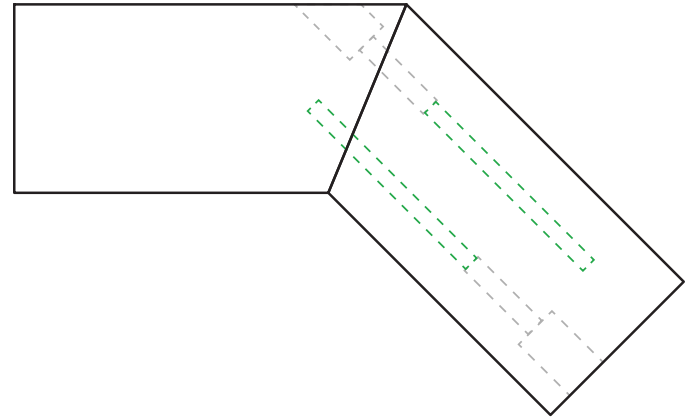
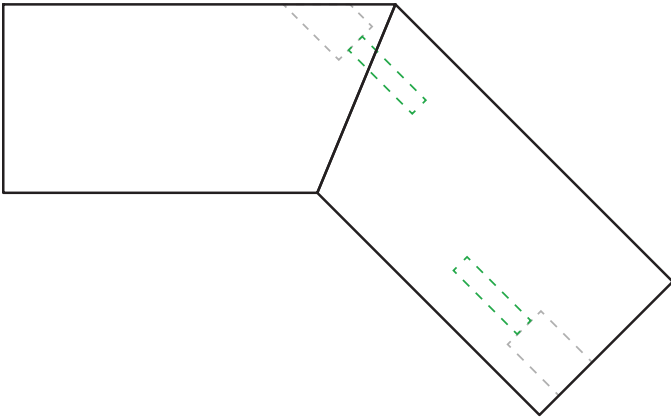
### 4. Drill to Accommodate Screw Head

Using a 3/8" drill bit (or appropriate), create countersink holes in the spline to house the head of the screws. Drill your holes in locations that will maximize engagement on both sides of the spline without allowing your screws to intersect.




**PRO TIP:** To drill at an angle, start by drilling perpendicular to the surface of the spline. Once you have traction, transition to drilling parallel with the opposite side.





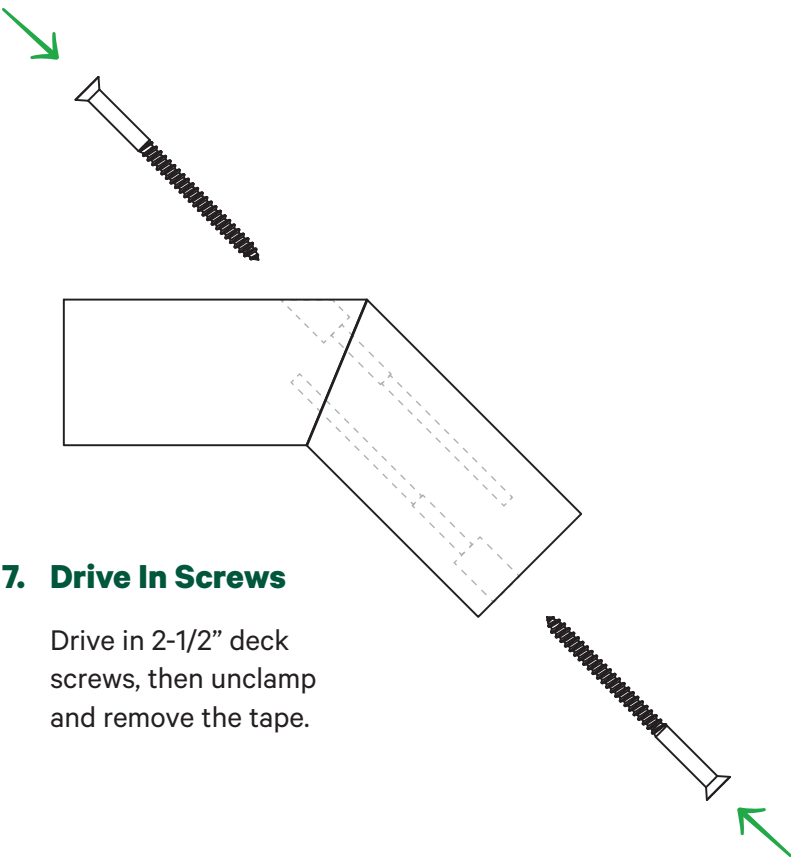
## 5. Drill to Accommodate Screw Shank

Ensure nothing has shifted, then switch to a  $\frac{5}{32}$ " drill bit (or appropriate). Drill into each countersunk pocket parallel with the opposite side and deep enough to accommodate the unthreaded shank of your screws.

 **PRO TIP:** Use tape on your drill bit to mark the required depth

## 6. Drill to Accommodate Screw Length

Use a  $\frac{1}{8}$ " bit (or appropriate) to drill 2-1/2" deep through the joint and into the opposite half of the spline.

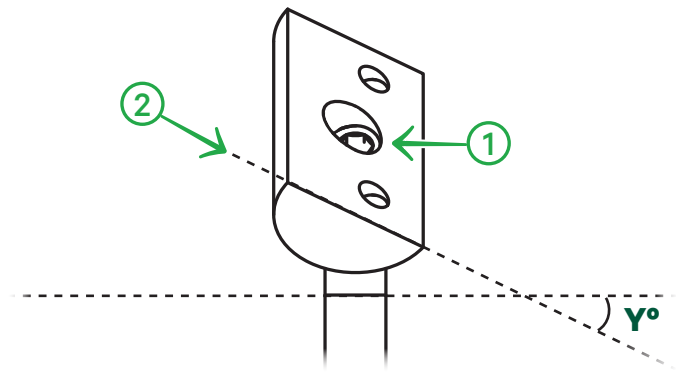


## 7. Drive In Screws

Drive in 2-1/2" deck screws, then unclamp and remove the tape.

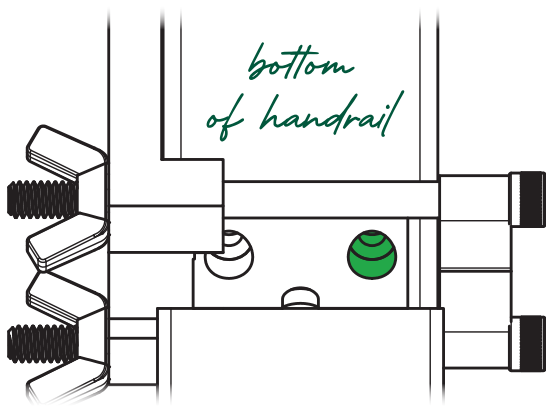
# Line Post Tops for Stair Runs

Attach handrail to stair line posts.



## How to Adjust the Angle of the Post Top on Stair Runs:


- 1 Use a 3/16" Allen wrench to loosen the post top.
- 2 Use an angle finder to adjust the angle of the post to match the pitch of your stairs ( $Y^\circ$ ). Tighten the screw to lock the angle in place.

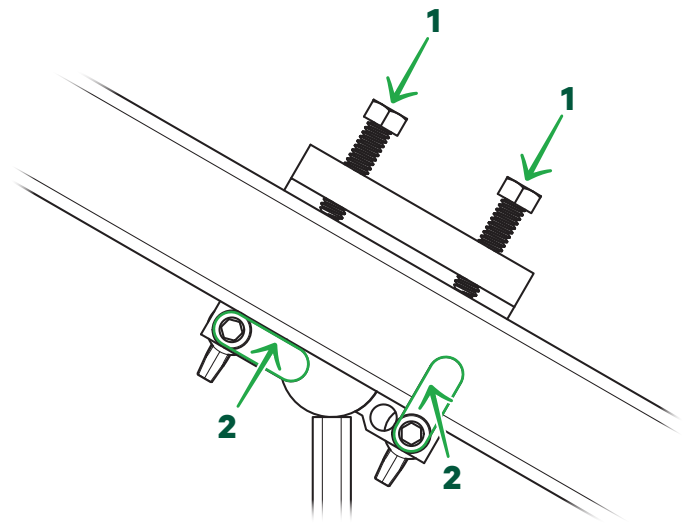


## 2. Drill and Tap Pilot Hole

Using the 5/32" drill bit, drill through one wall of the handrail using one of the post top holes as a guide.

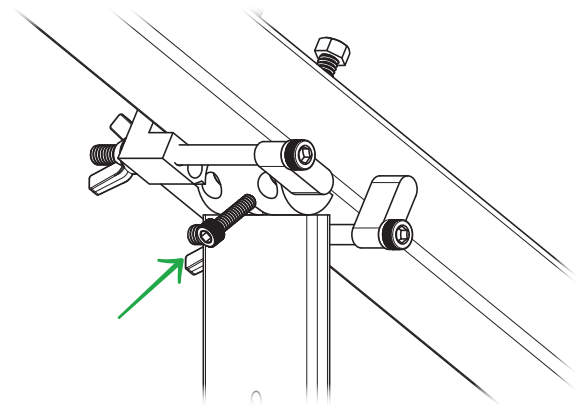
**For Stainless Steel Handrail:** Tap the pilot hole using the 10-24 tap.

 **PRO TIP:** Use machine oil, blow out each hole using canned air, and tap a second time for a cleaner thread.



## 1. Clamp Post Top to Handrail

Secure the handrail to the line post top using the Handrail Clamp for Line Posts. Tighten the nylon top screws first and then position and tighten one foot onto the post top and one onto the handrail.



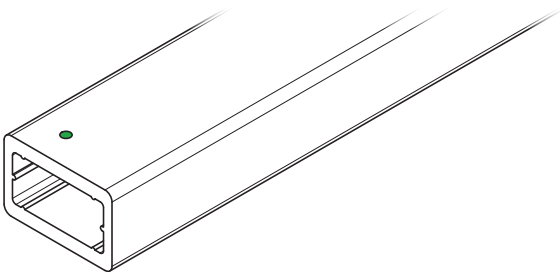
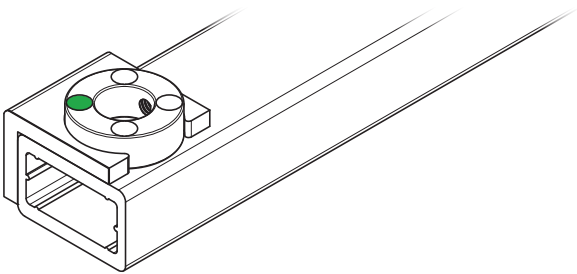
## 3. Drive in Screw

Secure with one Handrail Mounting Screw using a 5/32" driver.

## 4. Repeat steps 2-3 on the other post top hole.

# Stationary Post Tops

Attach handrail to stationary post tops on both terminal and line posts.



## 1. Mark Drilling Location

Mark the location of the first screw hole using the appropriate drill bit (see *chart*) or a spring-loaded center punch. Then, remove the post top collar.

## 2. Drill and Tap Pilot Hole


Use the chart below to determine the proper drill bit size, drilling depth, and whether tapping is required according to your application.

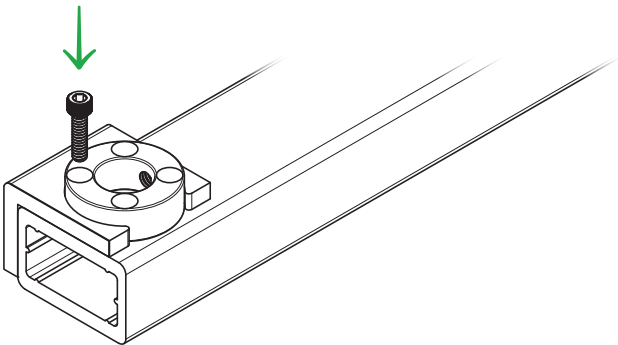
**ALUMINUM HANDRAIL:** Use 11/64" drill bit.

Spline Type at Drilling Location	No Hinge or Spline	Fixed Corner Spline	Adjustable Horizontal Corner Spline	Hinge for Aluminum Handrail
Drill Depth	through handrail wall	3/4" deep	3/4" deep	1" deep

**STAINLESS STEEL HANDRAIL:** Use 5/32" drill bit and 10-24 tap.

Spline Type at Drilling Location	No Hinge or Spline	Fixed Corner Spline	Custom Spline	Hinge for Stainless Steel Handrail
Drill Depth	through handrail wall	3/4" deep	3/4" deep	3/4" deep

 **PRO TIP:** For Stainless Steel Handrail, use machine oil, blow out each hole using canned air, and tap a second time for a cleaner thread.



## 3. Drive in Screw

Replace the post top collar into the template and secure it to the handrail using a Handrail Mounting Screw and a 5/32" driver.

## 4. Repeat steps 2–3 on the remaining three post top collar holes.

# Post-Mounted Handrail Brackets

Mount graspable handrail to the side of your Signature Series posts.

## Tools

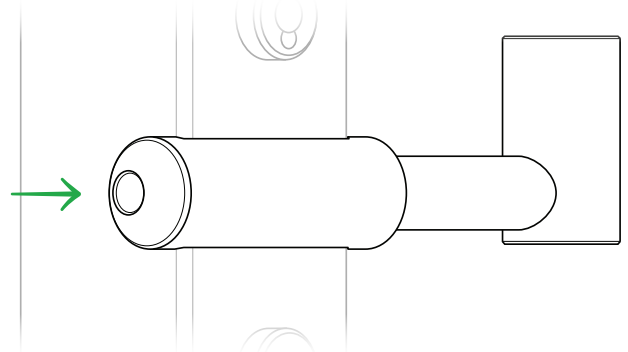
- ❑ 5/32" drill bit\*
- ❑ 1/8" Allen wrench\*
- ❑ 5/32" Allen wrench\*
- ❑ 3/16" Allen wrench\*
- ❑ 10-24 National Course tapered tap\*
- ❑ T-Handle tap wrench\*

\*available at [cablebullet.com](http://cablebullet.com)



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## SECURING AND ADJUSTING BRACKETS ON POSTS



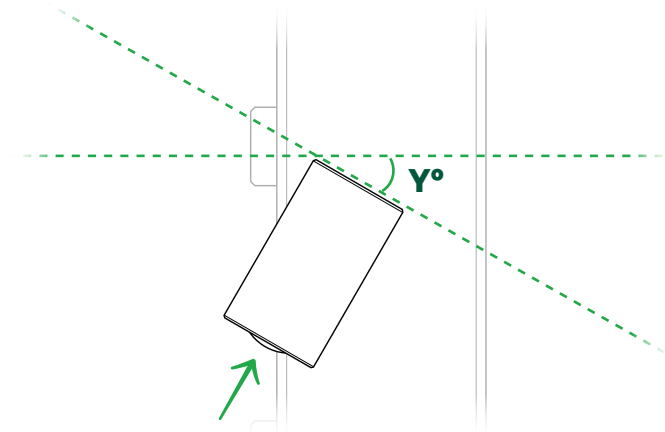
1. **Lock the bracket clamp in place** once bracket height is determined by tightening the set screw using a 3/16" Allen wrench.



**PLEASE NOTE:** For line posts, handrail brackets must be installed BEFORE the cables.



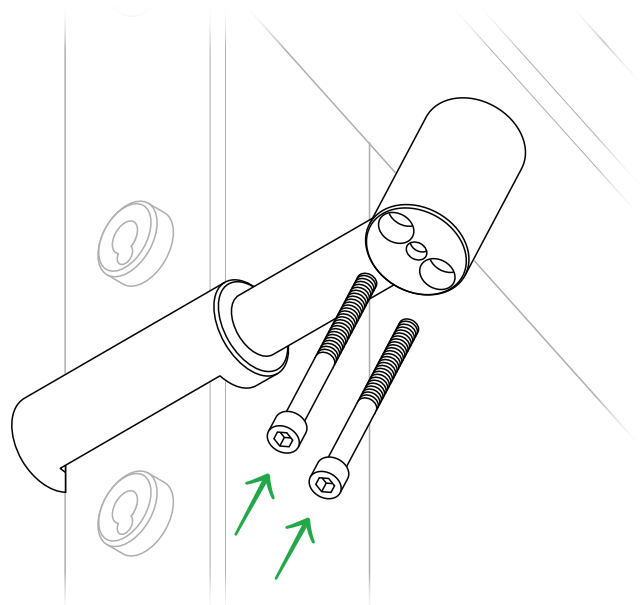
**CAUTION:** Anchoring the set screw will mar the post finish. Ensure the location is correct before tightening the set screw.



2. **Set the bracket head to the desired angle** and lock it in place using a 1/8" Allen wrench.

## ATTACHING ALUMINUM OR STAINLESS STEEL HANDRAIL

1. **Drill 2 pilot holes** into the handrail through the bracket head using a 5/32" drill bit.
2. **Tap the pilot holes** using a 10-24 tap and T-handle tap wrench.
3. **Secure the handrail to the bracket head** by driving in both 2" screws using a 5/32" Allen wrench.



# Wall-Mounted Handrail Brackets

Mount graspable handrail to wall surfaces.

## Tools

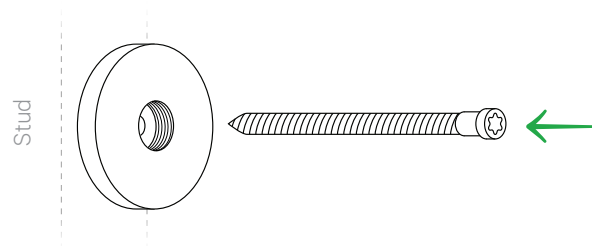
- ❑ 5/32" drill bit\*
- ❑ 3/16" drill bit\*
- ❑ 1/8" Allen wrench\*
- ❑ 5/32" Allen wrench\*
- ❑ T30 power bit\*
- ❑ 10-24 National Course tapered tap\*
- ❑ T-Handle tap wrench\*

\*available at cablebullet.com



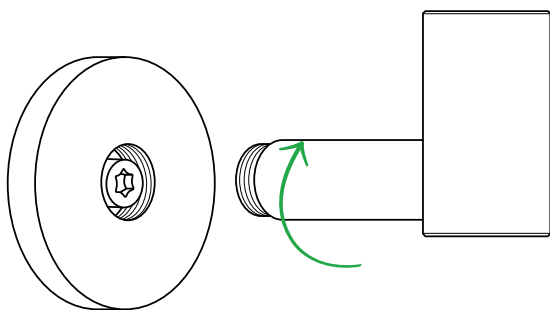
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## INSTALLING WALL-MOUNTED HANDRAIL BRACKETS

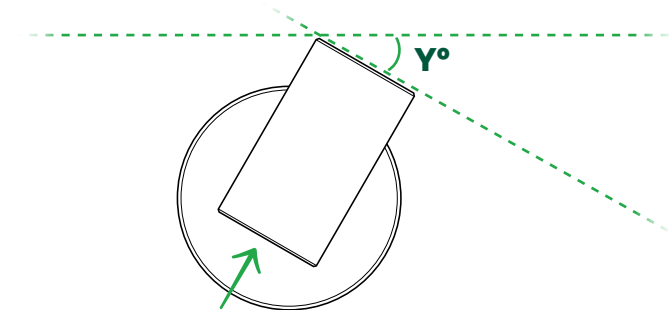


- 1. Mount the bracket collar to the wall** by drilling a 3/16" pilot hole and driving in the bracket mounting screw using a T30 driver.

**PLEASE NOTE:** The bracket must be mounted to a stud of other structural material.



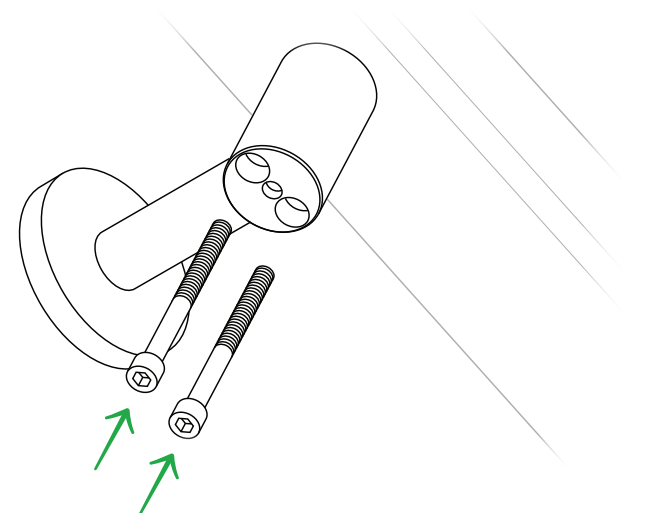
- 2. Screw the assembled bracket bar** and head to the collar by hand. All parts should assemble with ease.



- 3. Set the bracket head** to the desired angle and lock it in place using a 1/8" Allen wrench.

## ATTACHING ALUMINUM OR STAINLESS STEEL HANDRAIL

- 1. Drill 2 pilot holes** into the handrail through the bracket head using a 5/32" drill bit.
- 2. Tap the pilot holes** using a 10-24 tap and T-handle tap wrench.
- 3. Drive in both 2" screws** using a 5/32" Allen wrench to secure the handrail to the bracket head.



# Post-Side Handrail Brackets

Dead end handrail into the side of a post or a wall.

## Tools

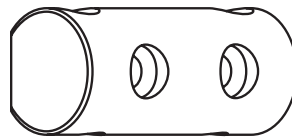
- ❑ 5/32" drill bit\*
- ❑ 11/64" drill bit\* (drywall, wood, or sleeved applications only)
- ❑ 1/2" drill bit (drywall applications only)
- ❑ 5/32" Allen wrench\*
- ❑ T20 power bit\* (drywall, wood, or sleeved applications only)
- ❑ Level or speed square
- ❑ Clamps
- ❑ 10-24 National Course tapered tap\*
- ❑ T-Handle tap wrench\*

\*available at [cablebullet.com](http://cablebullet.com)

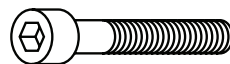


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## INCLUDED COMPONENTS



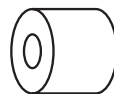
**x1 Handrail Bracket (A)**



**x4 1-1/4" Metal Screws (B)**



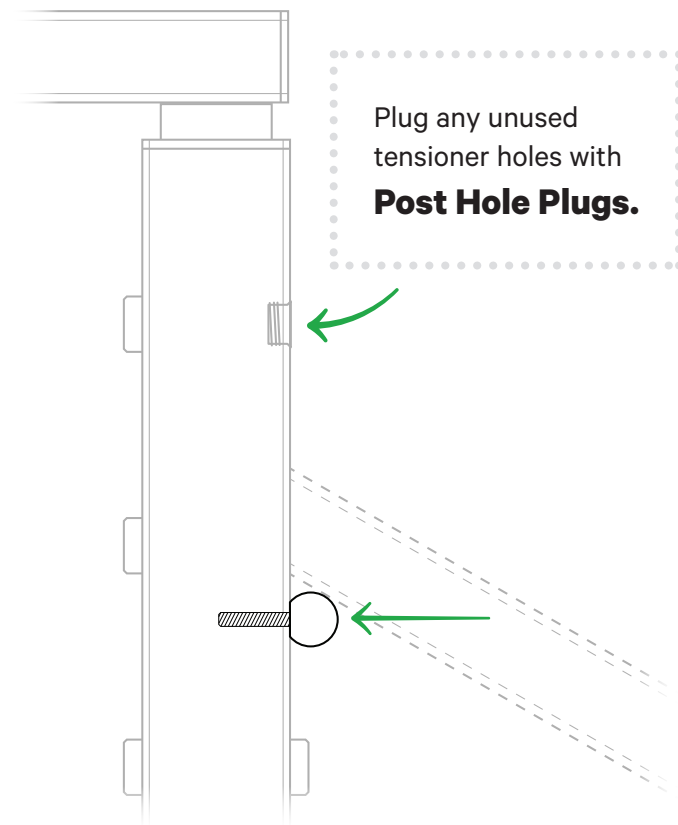
**x2 2-1/2" Wood Screws (C)**



**x2 Nylon Spacers (D)**

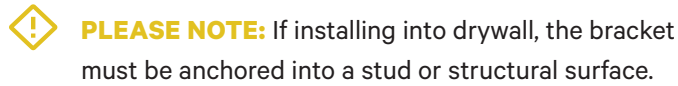
## INSTALLING BRACKET ON SIGNATURE SERIES POSTS

- 1. Position the bracket (A)** with the flat side against the post and hold it in place using a clamp.
- 2. Drill one pilot hole** into the post through the bracket using a 5/32" drill bit.
- 3. Tap the pilot hole** using a 10-24 tap and T-handle tap wrench.
- 4. Drive in one metal screw (B)** by hand using a 5/32" Allen wrench.
- 5. Use a level or speed square** to ensure your bracket is level.
- 6. Repeat steps 2-4** on the other bracket hole.

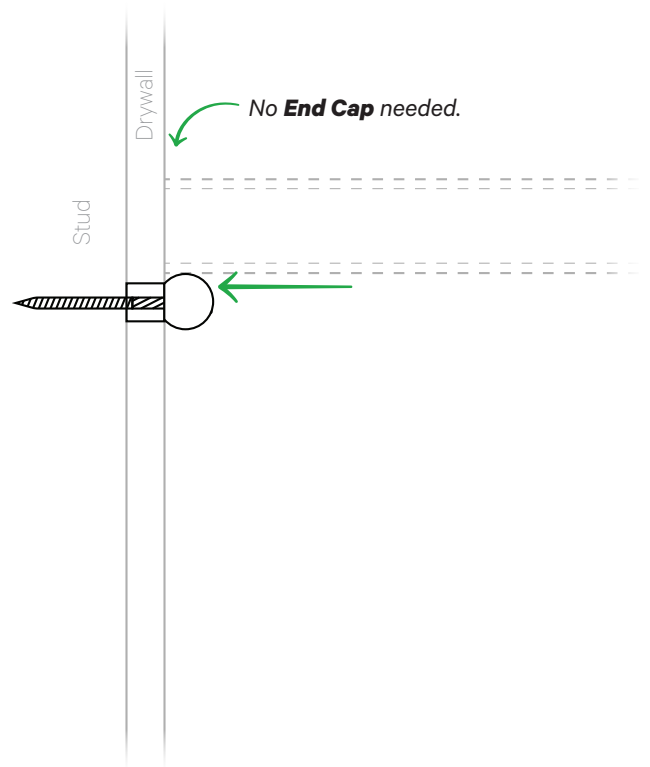


## INSTALLING THE BRACKET ON WOOD, SLEEVED, OR DRYWALL SURFACES

- 1. Position the bracket** (A) with the flat side against the mounting surface and mark the location of one pilot hole.

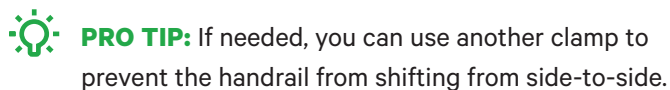


- 2. For drywall applications,** drill a 1/2" hole through the drywall only and place a nylon spacer (D) before drilling into the stud.
- 3. For all applications,** drill an 11/64" pilot hole and attach the bracket with one wood screw (C) using a T20 power bit.
- 4. Use a level or speed square** to ensure your bracket is level.
- 5. Repeat steps 2–3 on the other bracket hole.**

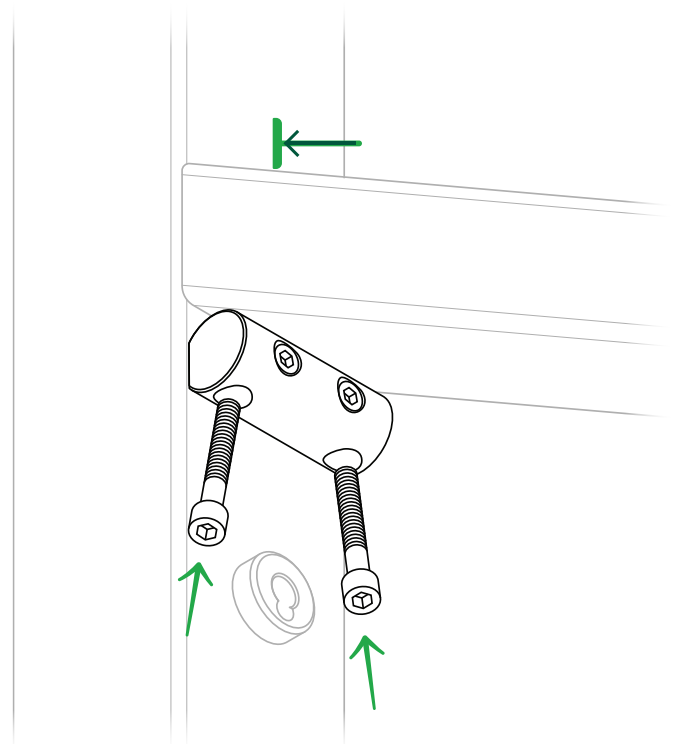


## ATTACHING ALUMINUM OR STAINLESS STEEL HANDRAIL

- 1. Place your handrail** on top of your installed bracket. Secure a clamp above the handrail to provide some leverage when drilling from beneath.




- 2. Drill 2 pilot holes** into the handrail through the bracket (A) using a 5/32" drill bit. Let the angle of the bracket holes determine the angle of your drilled hole.
- 3. Tap the pilot holes** using a 10-24 tap and T-handle tap wrench.
- 4. Drive in two metal screws** (B) using a 5/32" Allen wrench to secure the handrail to the bracket.





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