

# INSTALLATION MANUAL

## Econo Plus Stair Models



Illustrations are general and may not match your specific stair design.



# Thank You!

Thank you for selecting this Econo Stair product. Designed, engineered and manufactured in the USA, this staircase was built by our skilled artisans, using high-grade American-made materials and proven welding and woodworking processes to build you an exceptional product. It is important that you read and fully understand this Installation Manual. Following the steps exactly as specified in the manual will ease installation and reduce the amount of time necessary to complete the process. Keep this manual even after the installation process has been completed. Understand how to use tools that may be required and observe all safety warnings called out in this manual. Make sure those who may install this product for you understand this manual as well as you do. Enjoy your new staircase!

Scan the QR code to follow along with detailed step by step video!



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## NOTICE !!!

Unauthorized modifications may present extreme safety hazards and could also result in injury or product damage. Paragon Stairs (the manufacturer) strongly warns against, rejects and disclaims any modifications, add-on accessories or product alterations that are not designed, developed, tested and approved by the manufacturer's Engineering Department. Any product that is altered, modified or changed in any manner not specifically authorized after original manufacture – including the addition of "aftermarket" accessories or component parts not specifically approved by the manufacturer – will result in the warranty being voided. Any and all liability for personal injury and/or property damage caused by any unauthorized modifications, add-on accessories or products not approved by the manufacturer will be considered the responsibility of the individual(s) or company designing and/or making such changes. Paragon Stairs will vigorously pursue full indemnification and costs from any party responsible for such unauthorized post-manufacture modifications and/or accessories should personal injury and/or property damage result.



This symbol means:

### ATTENTION! BECOME ALERT!

Your safety and the safety of others is involved.

#### Signal word definitions:

The signal words below are used to identify levels of hazard seriousness. For your safety and the safety of others, read and follow the information give with these signal words and/or the symbol shown above.



### DANGER

**DANGER** indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.



### WARNING

**WARNING** indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.



### CAUTION

**CAUTION** indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices or property damage.



### CAUTION

**CAUTION** used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **MAY** result in property damage



#### CALIFORNIA PROPOSITION 65 – RAW WOOD PRODUCT EXPOSURE

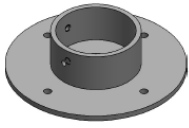
**WARNING:** Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to [www.P65Warnings.ca.gov/wood](http://www.P65Warnings.ca.gov/wood)



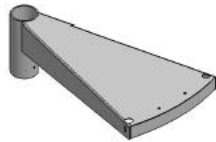
#### CALIFORNIA PROPOSITION 65

**WARNING:** This product can expose you to chemicals including formaldehyde, ethylbenzene, titanium dioxide, cumene, carbon black, silica and wood dust, which are known to the State of California to cause cancer, and toluene, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

# PARTS LIST



**1**  
Base Plate



**2**  
Bottom Tread  
(5.75" hub height)

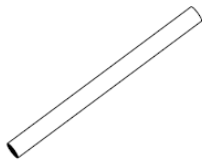


**3**  
Main Balusters

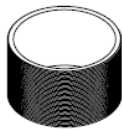


(for 60" diameter stair only)

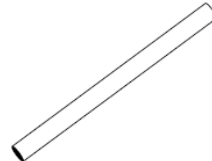
**4**  
Center Balusters



**5**  
Single Threaded Column



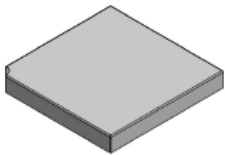
**6**  
Threaded Coupler



**7**  
Dual Threaded Column



**8**  
Tread



**9**  
Platform



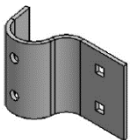
**10**  
Column Ext  
with Cap



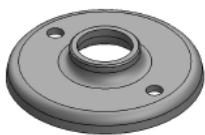
**11**  
Aluminum Handrail



**12**  
Aluminum HR End Cap



**13**  
Top Baluster Bracket



**14**  
Bottom Baluster  
Bracket



**15**  
Non-Column Side  
Platform Rail



**16**  
Non-Column Side  
Platform Rail



**17**  
Spacer

# HARDWARE LIST



**A**  
5/16"-18 x 5/16"  
Socket Set Screw



**B**  
3/8" Flat  
Washer



**C**  
3/8"x3" Lag  
Screw



**D**  
1/4" Flat Washer



**E**  
1/4" Lock Washer



**F**  
1/4"-20 Hex Nut



**G**  
1/4"-20 x 1-1/2" Carriage  
Bolt



**H**  
1/4"-20 x 3/4" Carriage  
Bolt



**I**  
#10 x 3/4" SQ.  
Drive D&T



**R**  
#12-1" Baluster Screw



**S**  
1/4"-20x1" Tube  
Connector Screw



**T**  
Tube Connector



**U**  
#12x1-1/2" Wood Screw

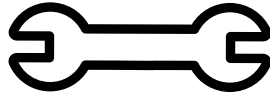


**V**  
#12-11x1" Square Pan  
Head Wood Screw

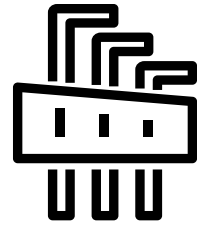
# TOOLS



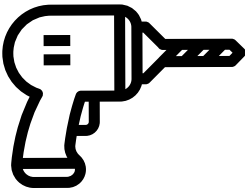
**7/16" Wrench**



**9/16" Wrench**



**5/16" Allen Wrench**



**Drill**



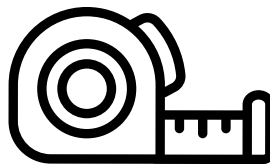
**7/32" HSS Drill Bit**



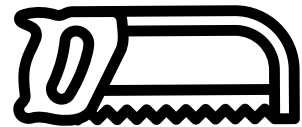
**9/32" HSS Drill Bit**



**Level**



**Measuring Tape**



**Hacksaw**



**Zip Ties**

# CENTER COLUMN ASSEMBLY

PLEASE DISREGARD IF YOU HAVE A SINGLE COLUMN

## Parts



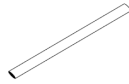
5

Single Threaded  
Column



6

Threaded  
Coupler



7

Dual Threaded  
Column

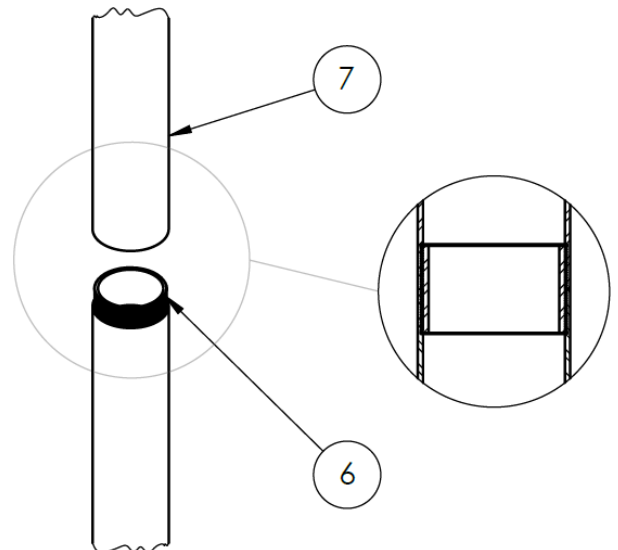
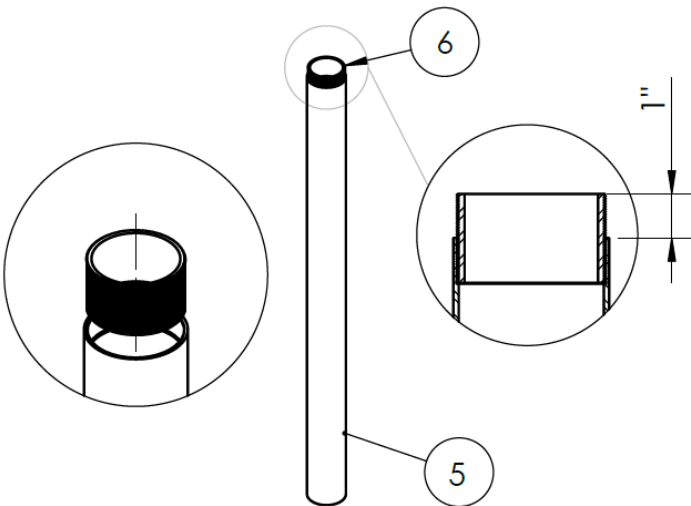
## Hardware

## Tools

1. Start with a single threaded column section **5** and screw a threaded coupler **6** into the threaded end.
2. Screw a double threaded column section **7** onto the exposed half and tighten until there are no gaps between the column pieces.
3. Screw another threaded coupler **6** into the threaded end of the assembly.

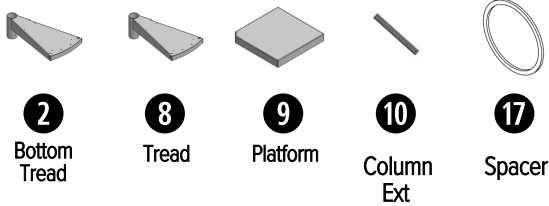
*NOTE: Additional double threaded column sections **7** may be included depending on the height of the stair being installed. Repeat steps 2 and 3 to join the additional sections.*

4. Screw the final single threaded column section **5** onto the assembly. Tighten all of the sections and ensure that there are no gaps between the column sections.



# PLATFORM AND BASE INSTALLATION

## Parts

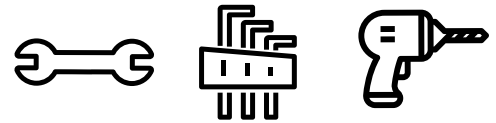


Best to use three people

## Hardware



## Tools



- While all treads **2** & **8** and the platform **9** are on the ground, partially thread set screws **A** into each tread and the platform sleeve.
- Partially thread set screws **A** into the baseplate **1**. Insert the center column assembly into the baseplate until is fully seated and attach baseplate **1** to column with set screws **A**.
- Determine the number of 1/8" spacers per by visiting this link or scanning the QR code below.
- Enter your floor to floor height and the number of riser in the shaded cells
- The calculator will return your riser height and how many spacers you need for the bottom and main treads
- The remaining spacers from 5g or 5f must be evenly distributed in between the treads of the stair.
  - Divide remaining number of spacers (5g or 5h) by  $3a = \underline{\hspace{2cm}}$
  - The whole number is the number of spacers for each rise.  $\underline{\hspace{2cm}}$   
**EXAMPLE:** If 5h is 48.5 and  $3a = 12$ , the result is  $48.5/12 = 4.0417$ . The whole number would be 4.
  - Multiply  $3a$  by  $6b = \underline{\hspace{2cm}}$
  - Subtract  $6c$  from  $5g/5h = \underline{\hspace{2cm}}$

**NOTE:** This is the remaining number of spacers that must be added throughout the entire stair to meet the floor to floor height. Do not add all of the spacers calculated in 6d to only one rise. Add only one spacer per rise.

**⚠ WARNING: The platform is heavy. Steps 4 through 6 require a minimum of 3 people. One to keep the column steady and 2 people to hoist and hold the platform in place. A fourth person may then drill and fasten the platform.**

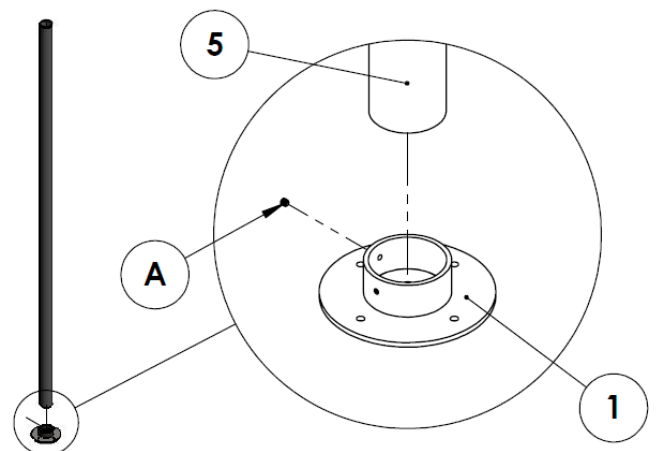
## Paragon Stairs Econo Plus Spacer Calculator



### Econo Plus Spacer Calculator

Enter your exact floor to floor height in inches here -->	112
Enter the total number of rises for your stair (count of treads + platform) here -->	12
Riser Height (in):	9.3
Bottom Tread Spacer Quantity Needed:	13
Main Tread Spacer Quantity Needed:	7

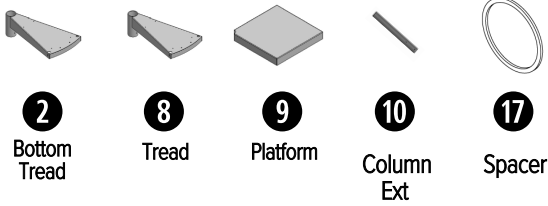
<https://bit.ly/econo-plus-spacer-calculator>





# PLATFORM AND BASE INSTALLATION

## Parts



Best to use three people

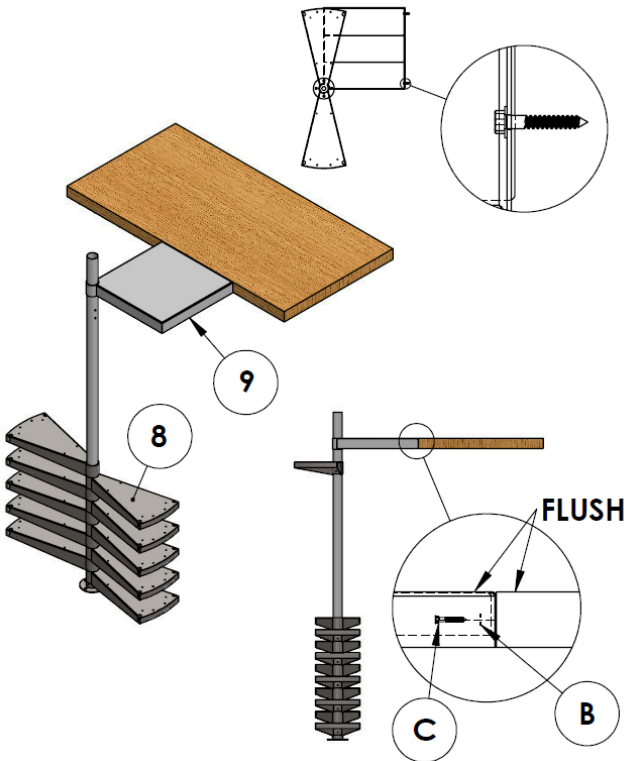
## Hardware



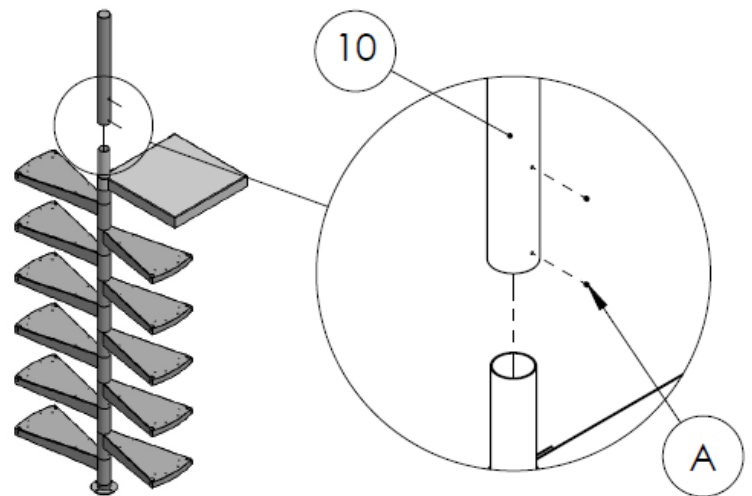
## Tools



- Place the number of spacers determined in 6b onto the center column assembly.
- Place the bottom tread **2** onto the center column assembly. Measure the rise from the floor to the top surface of the tread. If your stair has wood tread covers, the measurement should be 0.75" shorter than the rise height you calculated in 3b. If you do not have wood tread covers, the measurement should be equal to the rise height calculated in 3b.



- Place the number of spacers determined in 6b onto the center column assembly.
- Place a tread **8** over the center column assembly. This tread can be used to help push the spacers down the column assembly.
- Measure the rise from the top surface of the bottom tread to the top surface of the next tread. The measurement should be equal to the rise height calculated in 3b.
- Repeat steps 9-11 for the remaining treads and platform.
- Slide the column extension **10** down over the center column assembly and tighten set screws **A**.
- Place the column cap on the top of the column extension. You can use fast set epoxy to hold cap in place.



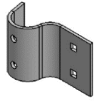
# TREAD AND BALUSTER INSTALLATION

## Parts



3

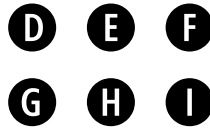
Main Balusters



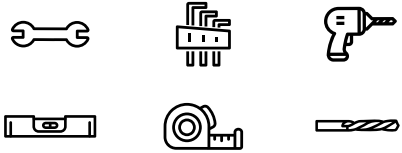
13

Top Baluster Bracket

## Hardware



## Tools

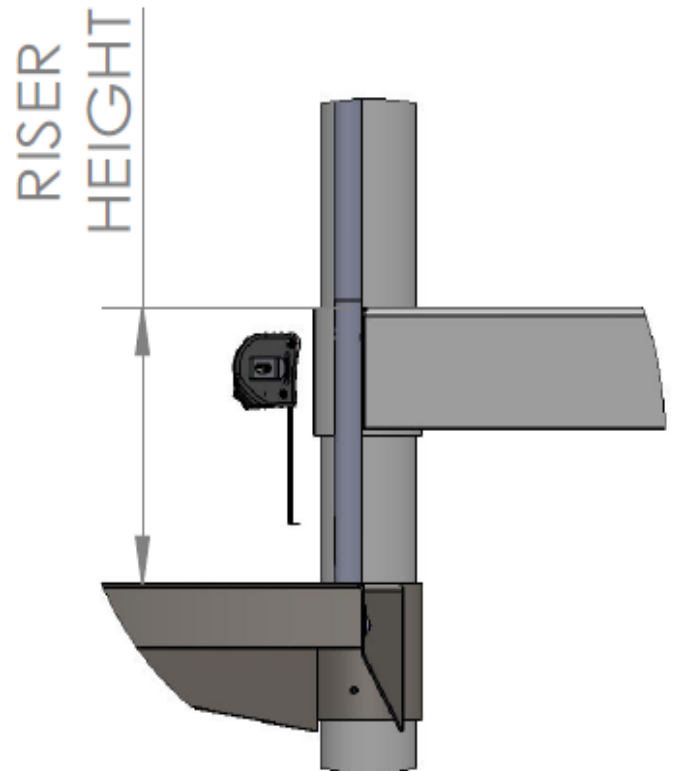
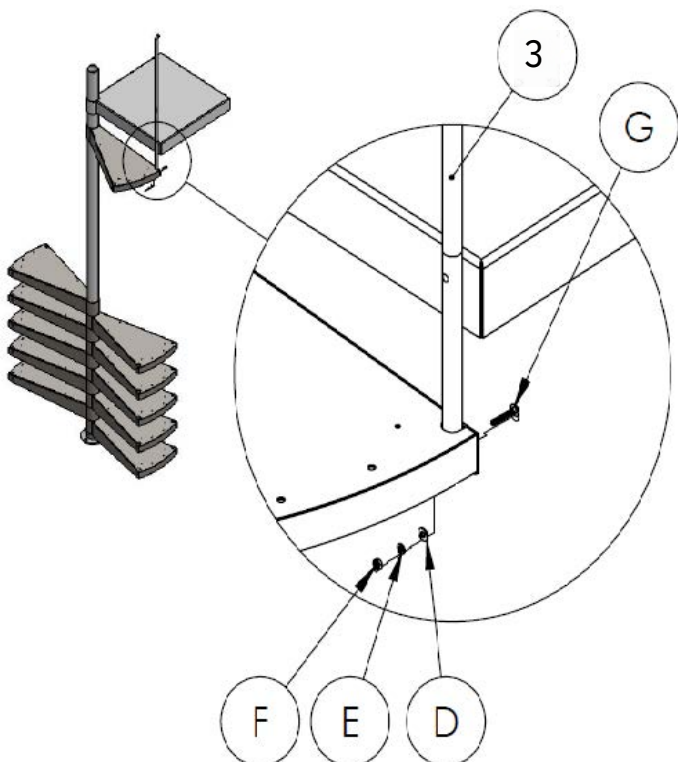


1. Start this installation with the top tread. Place a main baluster **3** in the hole closest to the platform.
2. Attach this baluster to the tread using the carriage bolt **G**, nut **F**, washer **D** and lock washer **E**.

*NOTE: Main balusters have two holes drilled near the bottom.*

3. Move the top tread to the proper riser height required. If you do not know your riser height, determine it by using the simple calculation below:

- a. Add number of treads and platforms = \_\_\_\_\_
- b. Measure the floor-to-floor height in inches = \_\_\_\_\_
- c. **Divide 3b by 3a (above) = \_\_\_\_\_**
- d. Riser height is usually between 8½" and 9½".

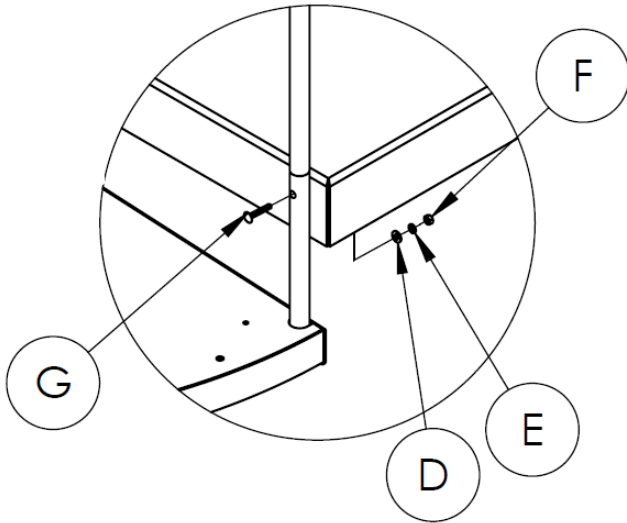


# TREAD AND BALUSTER INSTALLATION

(CONTINUED)

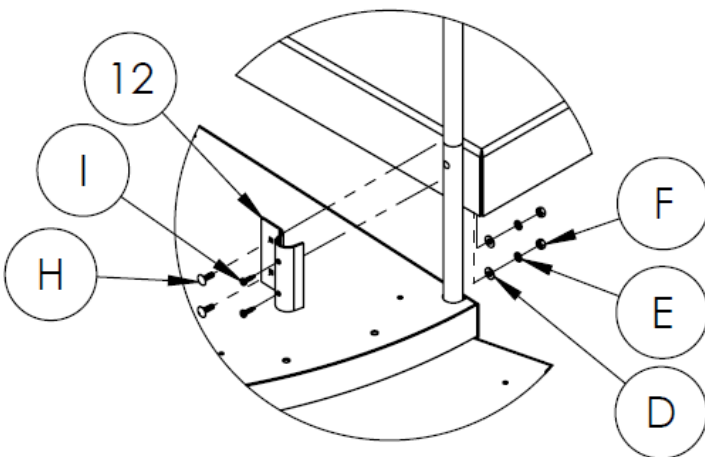
1. For stairs that are 42"-54" in diameter, plumb the main baluster and attach to the face of the platform using carriage bolt **G**, nut **F**, washer **D** and lock washer **E**. A 1/4" diameter hole must be drilled in the platform at the location of the pre-drilled hole in the baluster.

42"-54" in diameter

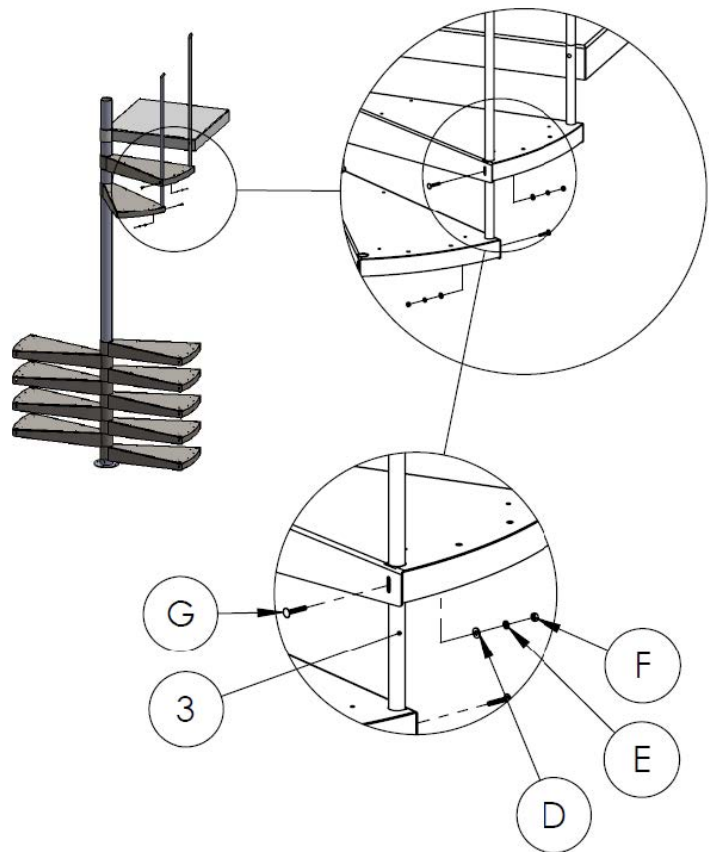


For stairs that are 60" or more in diameter, plumb the main baluster and attach to the face of the platform using the top baluster bracket, carriage bolts **H** and SQ Drive D&T screws **I**, nut **F**, washer **D**, and lock washer **E**.

60" or more in diameter



2. Check that the baluster is plumb. Tighten the 5/16" set screws in the tread hub to lock the top tread to the center column.
4. Spin the next tread into position beneath the tread above. Place a main baluster through the upper tread and into the lower tread.
5. Secure the baluster to the lower tread using carriage bolt **G**, nut **F**, washer **D** and lock washer **E**.
6. Adjust the height of the lower tread to be one riser height below the tread above. Fasten the baluster with carriage bolt **G**, nut **F**, washer **D** and lock washer **E**.
7. Repeat steps 4-6 with the remaining treads.



# BOTTOM BALUSTER INSTALLATION

## Parts



3

Main Balusters



14

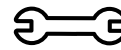
Bottom Baluster Bracket

## Hardware

F E D

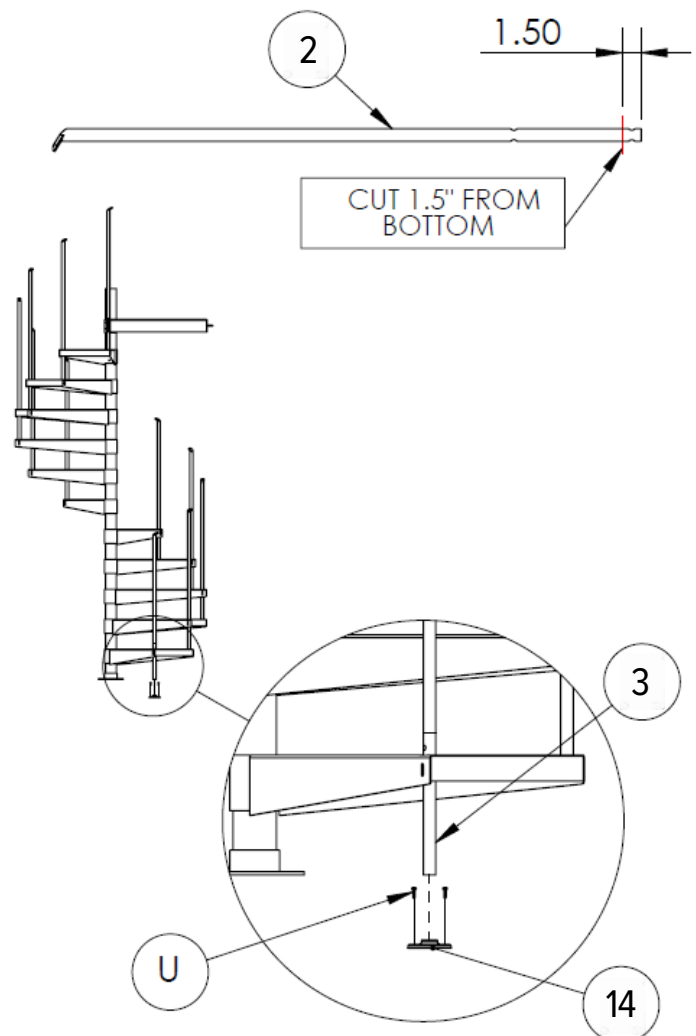
G U

## Tools



*NOTE: The main baluster connecting the bottom tread to the floor must be cut.*

1. Cut 1½" off the bottom of the last main baluster.
2. Place the bottom baluster bracket on the ground below the first tread. Guide the baluster through the hole in the first tread and into the hole of the bottom baluster bracket.
3. Adjust the height of the lower tread to be one riser height below the tread above. Fasten the baluster with carriage bolt **G**, nut **F**, washer **D** and lock washer **E**.
4. Check that the baluster is plumb. Tighten the 5/16" set screws in the tread hub to lock the tread to the center column.
5. Ensure that the baluster remained plumb, then fasten the bottom baluster bracket to the floor using wood screws **U**. Masonry fasteners (not supplied) will need to be used if installing into concrete.



# ALUMINUM HANDRAIL FORMING

## Parts



11

Aluminum Handrail

## Hardware

## Tools



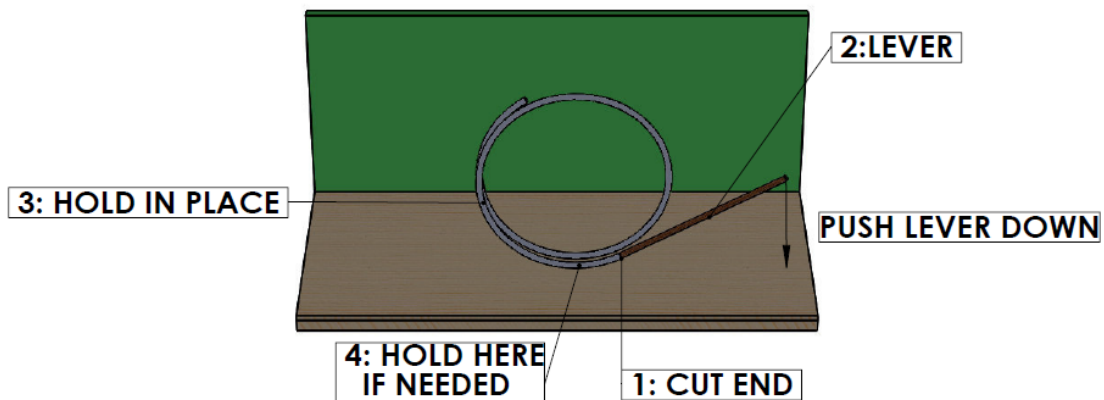
Best to use two people

- The handrail is shipped in a coil that is typically between 36” and 48” in diameter. The first step to fitting the handrail is increasing this diameter to the proper coil diameter listed below. If you don’t see your diameter size listed below please contact us.

Stair Diameter	3’-6”	4’-0”	4’-6”	5’-0”	5’-6”	6’-0”
Coil Diameter	60”	65”	70”	75”	80”	85”

*NOTE: The coil diameter should be larger than the stair diameter.*

- On a soft surface such as carpet, position the coil as depicted below. The cut end ❶ should be approximately 4”-6” off the ground.
- Insert a lever ❷ into the cut end. A lever such as a broom handle or pipe, is suitable.
- Hold the coil in place on the side opposite the cut end. Push the lever down until the coil bends slightly. It may be necessary to brace the coil where it contacts the ground to prevent it from slipping.

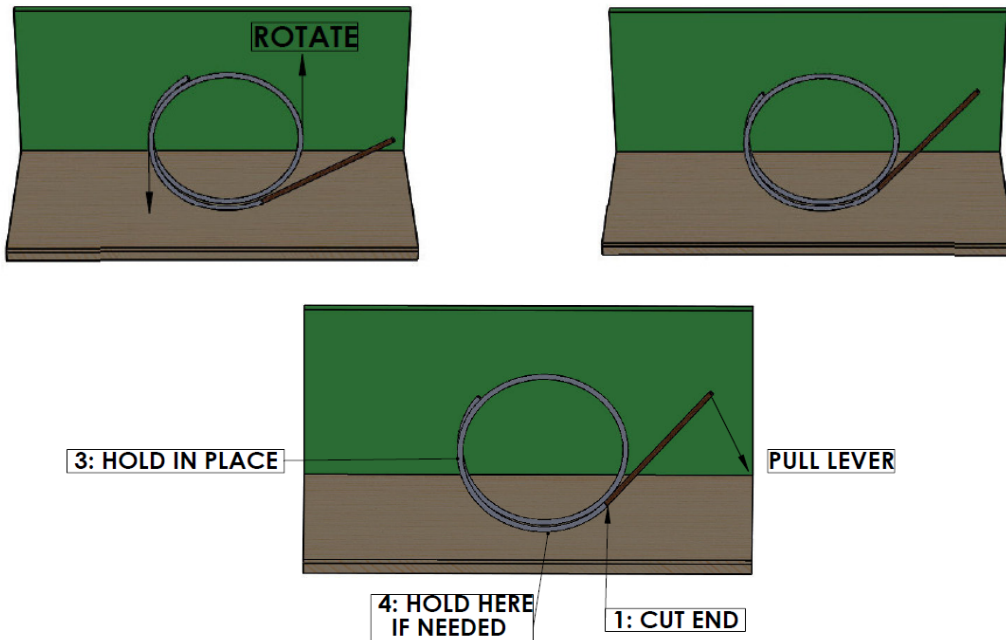


*NOTE: This example depicts a right hand up handrail. The lever would be on the left side of a left hand up handrail.*

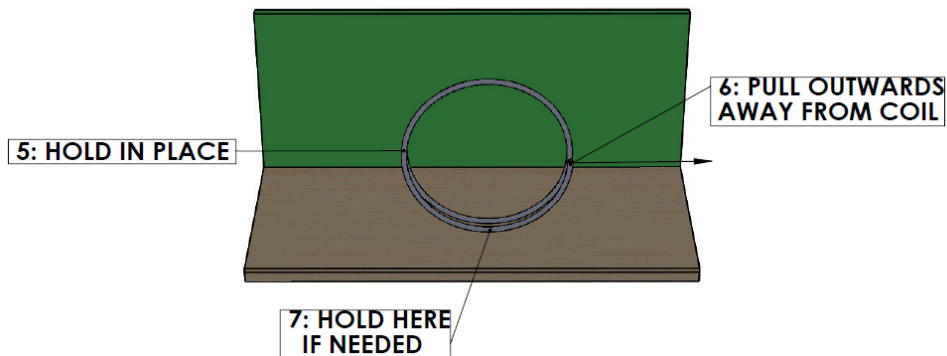
**IMPORTANT! The handrail is best formed with many small adjustments and regular measurements. To avoid kinks and/or warped sections, do not sharply bend the handrail.**

- Rotate the handrail counterclockwise (clockwise for left hand up) approximately 20 degrees.
- Hold the coil in place on the side opposite the cut end. Push the lever down until the coil bends slightly. It may be necessary to brace the coil where it contacts the ground to prevent it from slipping while forming.

# ALUMINUM HANDRAIL FORMING (CONTINUED)



7. Repeat steps 5 and 6 until the cut end is vertical. It should now be long enough to form by hand.
8. Hold the coil in place and pull the unsecured side outward and away from the center of the coil until the coil bends slightly. It may be necessary to brace the coil where it contacts the ground to prevent it from slipping while forming.



9. Continue rotating the coil and forming until the whole coil has been worked through. Measure the coil diameter to determine if more adjustment is needed. If so, repeat the forming process from the beginning.

**IMPORTANT! Do not try to bend the handrail into shape on the first pass through the coil. The handrail is best formed with many small adjustments and regular measurements. Repeat the process as needed.**

# CHECKING THE HANDRAIL CURVATURE

## Parts



11

Aluminum Handrail

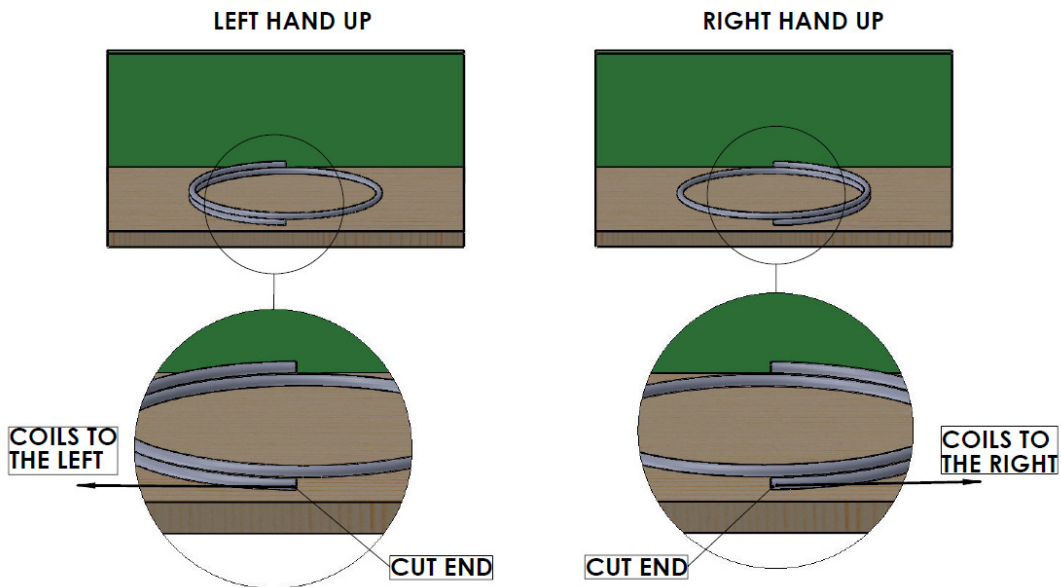
## Hardware

## Tools



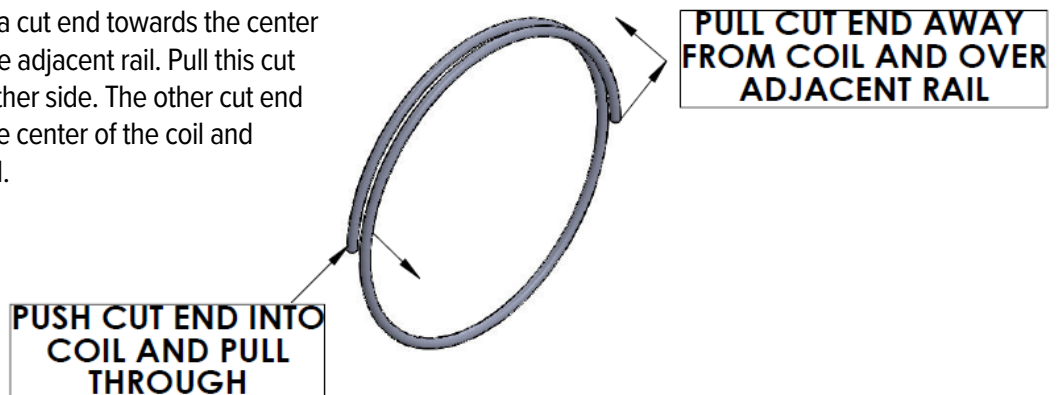
Best to use two people

10. Lay the handrail down and find the cut end that contacts the ground. Use the method below to determine the orientation of the handrail.



*NOTE: If the handrail orientation matches the orientation of the stairs being installed, skip to the next step.*

11. Stand the handrail up. Push a cut end towards the center of the coil enough to clear the adjacent rail. Pull this cut end through the coil to the other side. The other cut end must be pulled away from the center of the coil and pushed over the adjacent rail.



# PULLING THE HANDRAIL INTO A SPIRAL

## Parts



11

Aluminum Handrail



Best to use two people

## Hardware

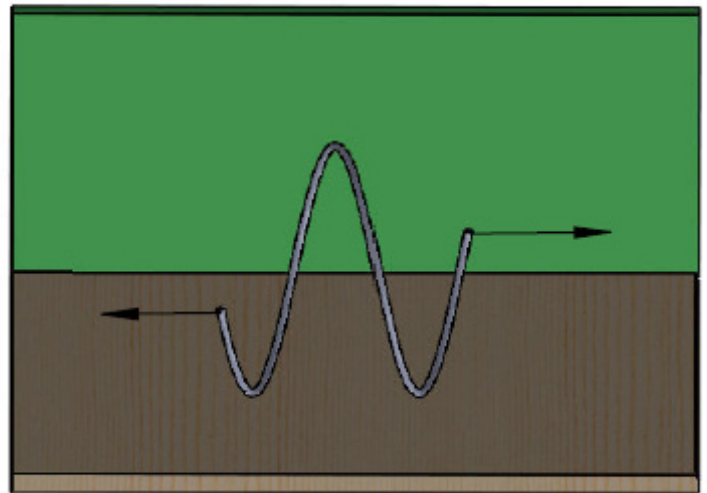
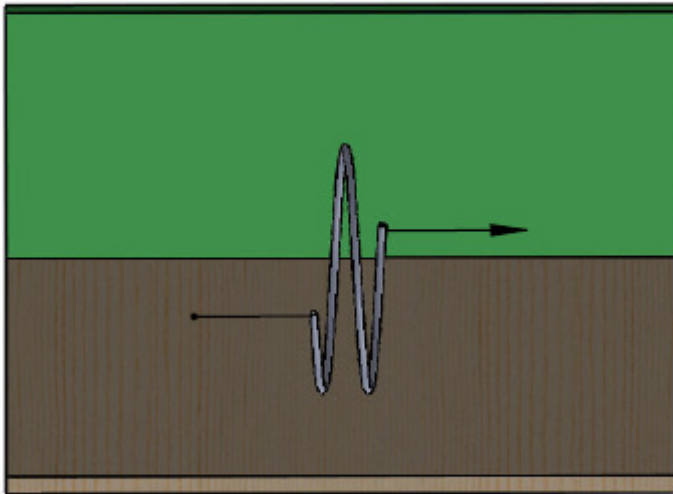
## Tools



1. Determine the end-to-end length needed based on the diameter of the stair being installed.

Stair Diameter	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
End to End Length	14'	13'	12'	11'	11'	10'

2. With the help of another person, pull the handrail apart to the desired end-to-end length. Stop regularly to remeasure the handrail and inspect it for any kinks that may be forming.





# ALUMINUM HANDRAIL INSTALLATION

## Parts



11

Aluminum Handrail



12

Aluminum HR End Cap

## Hardware



## Tools



zip ties  
(optional/not supplied)

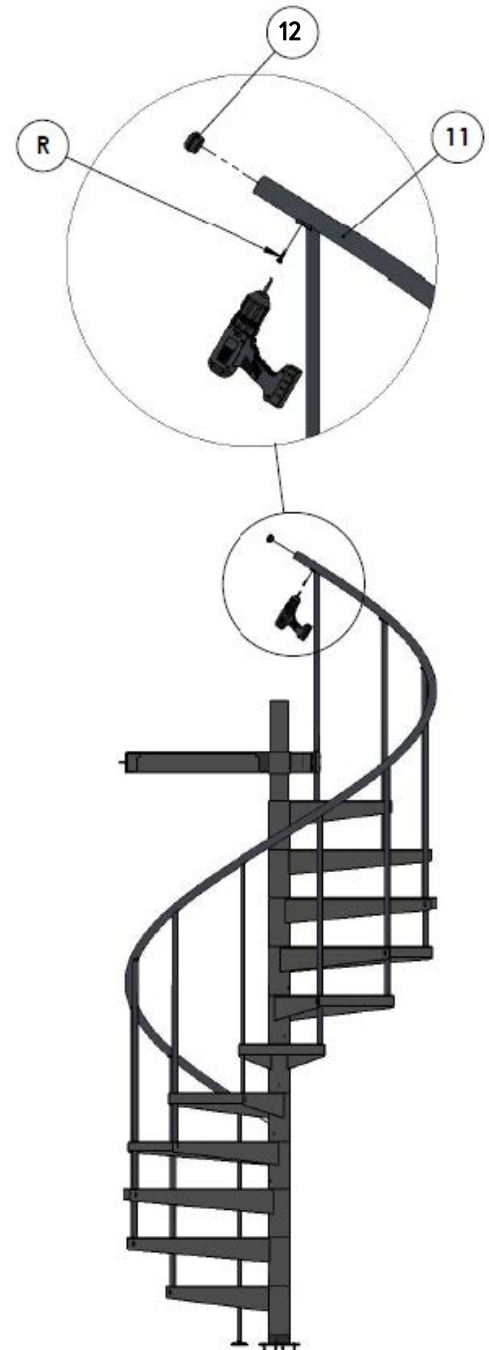
1. Once the Handrail has been shaped, dry fit the rail to the baluster tips.

*NOTE: The handrail may be slightly kinked on both ends. This is normal and the handrail should be positioned so that these ends can be cut off after installation.*

*NOTE: To assist in installation, it may be beneficial to use zip ties to hold the handrail onto the baluster tips during the installation process.*

*NOTE: If the handrail does not sit flush on the baluster tips, the baluster tips can be bent up or down as needed with an adjustable wrench to better match the angle of the handrail. Place a rag between the wrench and the baluster tip to prevent damage to the finish of the baluster tip.*

2. Working together with another person, start at the top of the stair and install each screw **R** through the hole in the tip of each main baluster. Push or pull the handrail as needed to match it up with the baluster tip.
3. Once the handrail has been attached to all the main balusters, cut the railing 3" above the top baluster and 3" below the bottom baluster. If your local building code requires a longer length, cut the handrail to meet the code.
4. Use the supplied two-part epoxy to bond the endcaps **12** to the handrail.



# CENTER BALUSTER INSTALLATION

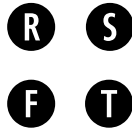
## Parts



4

Center Balusters

## Hardware



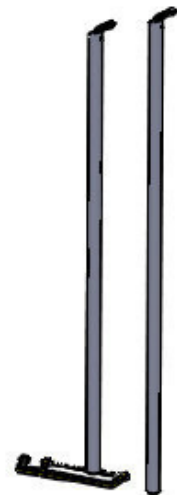
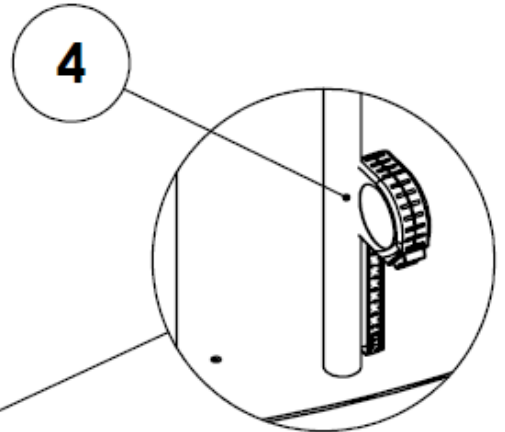
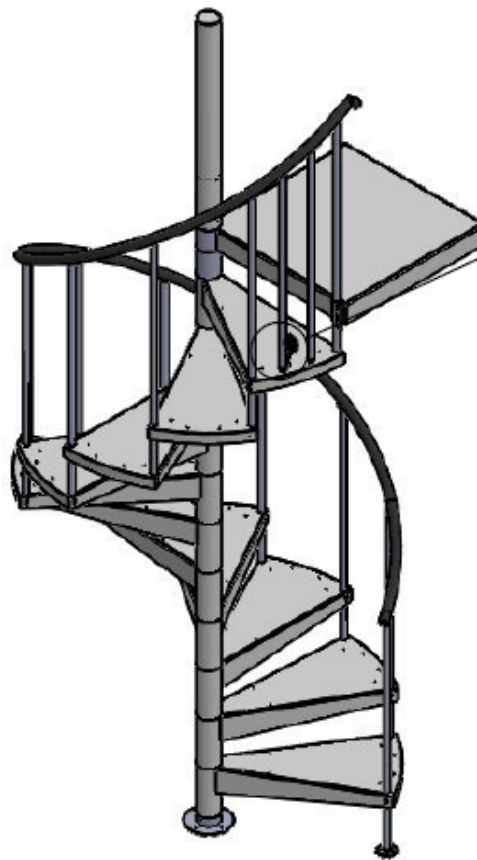
## Tools



1. Measure each center baluster **4** from tip (at the handrail) to the top of the corresponding tread. Length is determined by measuring the top of the tread to the bottom of the handrail. Each Center Baluster should be measured and cut individually.

*NOTE: Do not cut all the balusters the same length. Measure each baluster position individually.*

2. Using a saw, cut each baluster to the correct length.



# CENTER BALUSTER INSTALLATION

(CONTINUED)

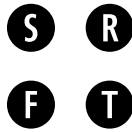
## Parts



4

Center Balusters

## Hardware



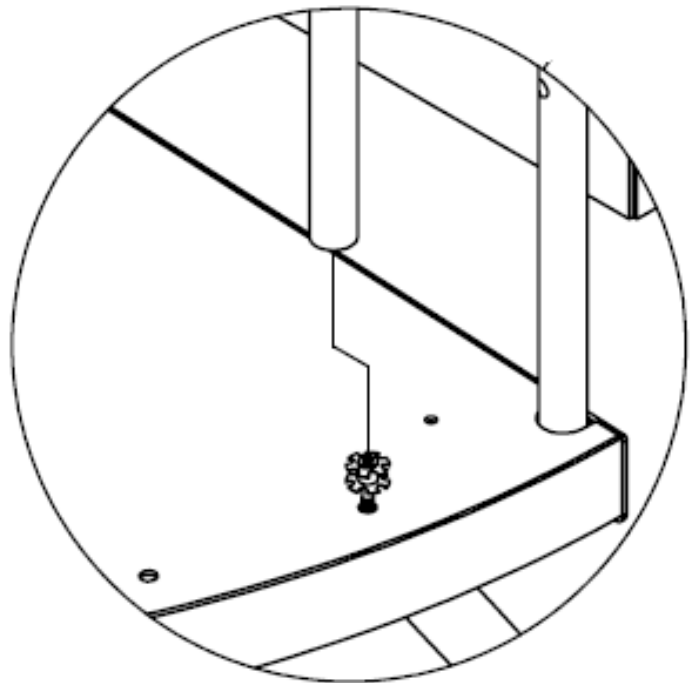
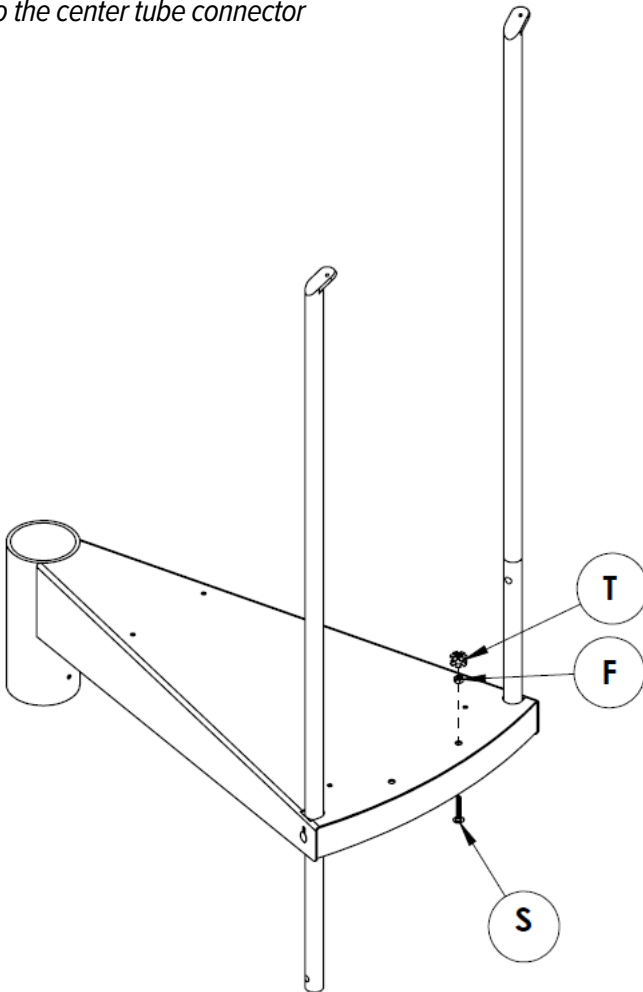
## Tools



3. Insert bolt **S** through the tread into hex nut **F**. Do not fully tighten the hex nut.
4. Thread a tube connector **T** onto the exposed threads of the bolt until it is seated against the hex nut. Make sure the flanges on the tube connector are facing down toward the tread surface. Unscrew the tube connector one revolution to create a gap between the nut and the tube connector.

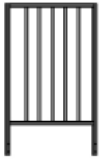
*NOTE: It may be easier to install center baluster at an angle onto the center tube connector*

5. Ensure that the baluster tip is in line with the handrail, then slide the center baluster onto the tube connector.
6. Install screw **R** through the hole in the tip of each center baluster.
7. Plumb the baluster and tighten the screw that was installed in step 3. This will pull the baluster against the tread and complete the connection.
8. Repeat steps 1-7 for each center baluster.



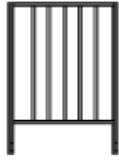
# PLATFORM RAIL INSTALLATION

## Parts



15

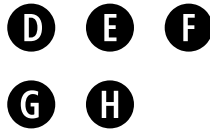
Column Side Platform Rail



16

Non-Column Side Platform Rail

## Hardware



## Tools

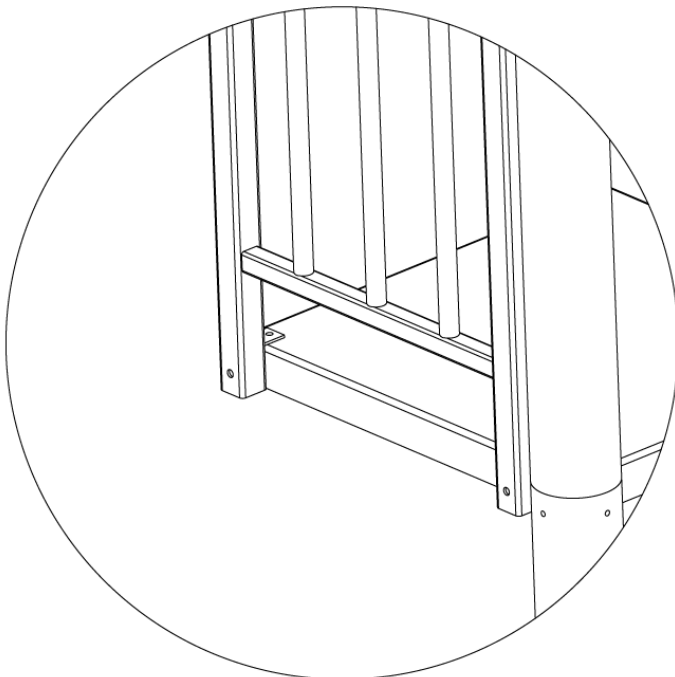


Instructional video available at [www.youtube.com/paragon](http://www.youtube.com/paragon)

1. Place the column side platform rail onto the platform in the correct location. The column side platform rail will be approximately 1/4" away from the column and 1/4" away from the end of the platform.
2. Using the holes on the bottom of the column side platform rail as a template, mark the location of the holes on the top and side surface of the platform.
3. Drill a 9/32" diameter hole in each location.
4. Using bolt **G**, nut **F**, washer **D** and lock washer **E**, secure the column side platform rail to the side of the platform.
5. Using bolt **H**, nut **F**, washer **D** and lock washer **E**, secure the column side platform rail to the top of the platform.
6. If your stair has a non-column side platform rail, follow steps 1-5 to install the non-column side platform rail.

*NOTE: The column side platform rail will be approximately 2 1/2" shorter in width than the non-column side platform rail. Be sure to install the column side platform rail first and then the non-column side platform rail.*

**⚠ WARNING: The platform rail(s) must be installed on the platform of the stair. Failure to install the platform rail(s) could result in serious injury or death.**

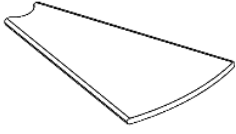


# **WOOD PLATFORM COVERS AND WOOD TREAD COVERS**

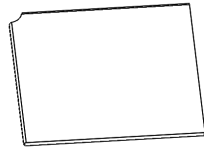
(IF APPLICABLE)

**REFERENCE FOLDER  
BEFORE PROCEEDING**

# PARTS LIST



**1**  
**Tread Cover**



**2**  
**Platform Cover**

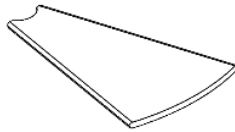
# HARDWARE LIST



**#12-11x1" Square Pan  
Wood Screw**

# WOOD TREAD COVER INSTALLATION

## Parts



1

Tread Cover

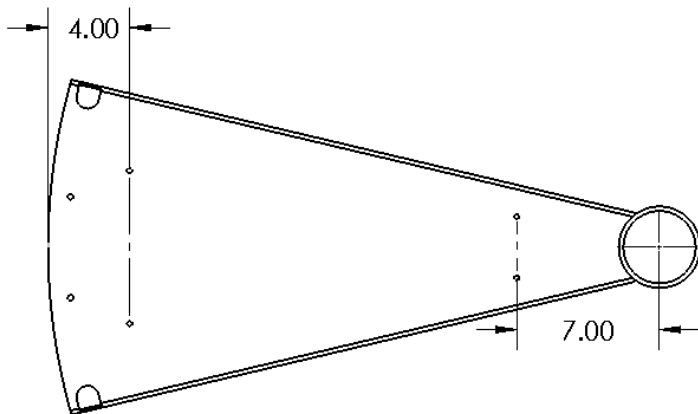
## Hardware

V

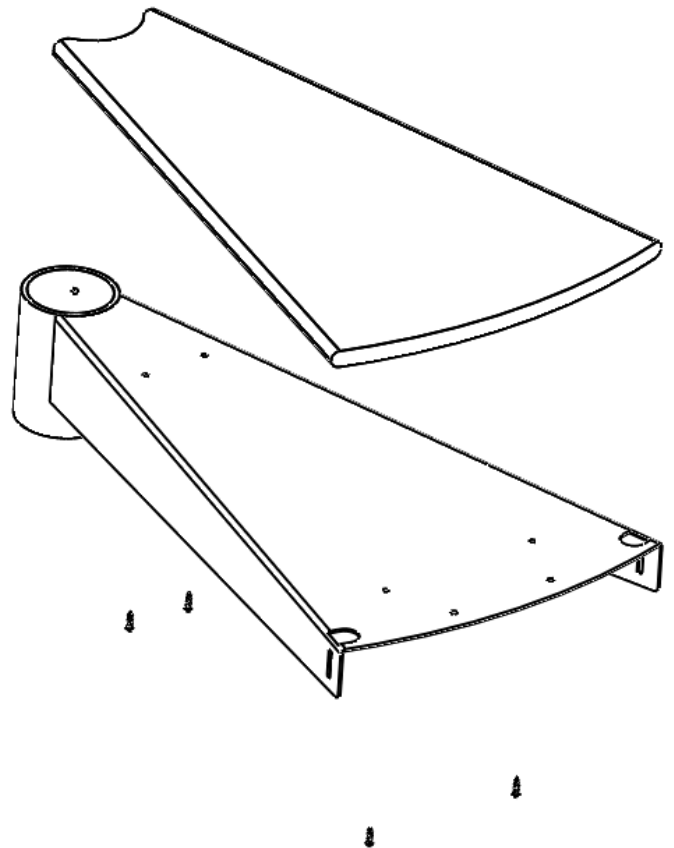
## Tools



1. The treads are not pre-drilled to accept the tread covers 1.
2. Drill four 1/4" holes in the steel tread top in the approximate location shown below. Do not drill the holes too close to the edge of the tread top as the wood tread cover could split when installing the screws.



3. Locate the wood tread cover on top of the tread and center it so the reveal is the same on the front and back of the tread.
4. Install the pan head wood screw V through the holes drilled in step 2 and into the wood tread cover.
5. Repeat this step for each tread until all the tread covers have been installed.





# WOOD PLATFORM COVER INSTALLATION

## Parts



**2**  
Platform Cover

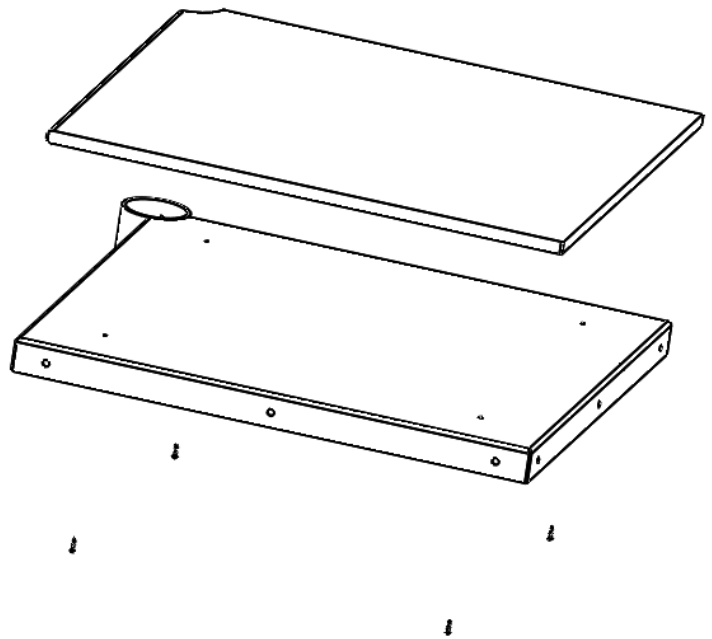
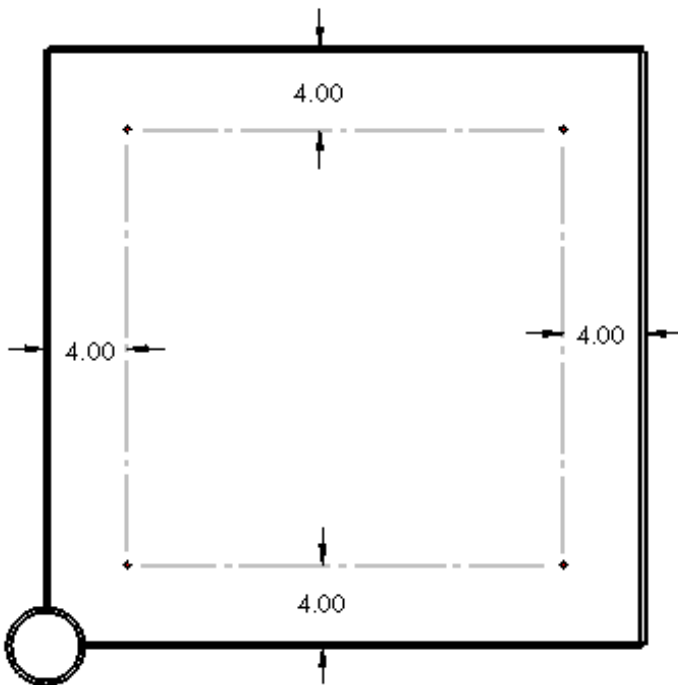
## Hardware



## Tools



1. The platform is not pre-drilled to accept the platform cover **2**.
2. Drill four 1/4" holes in the steel platform top in the approximate location shown below. Do not drill the holes too close to the edge of the tread top as the wood platform cover could split when installing the screws.
3. Locate the wood platform cover on top of the platform.
4. Install the pan head wood screws **V** through the holes drilled in step 2 and into the wood platform cover.



**END**

Thank you for purchasing this product. Please refer to the product folder provided if you have any questions or concerns.