

# Installation Instructions for Fortress Round Handrail & Accessories

It is the responsibility of the installer to meet all code and safety requirements as well as obtain all required building permits. The installer should determine and implement appropriate installation techniques for each installation situation. The Fortress Company and its distributors shall not be held liable for improper or unsafe installations.

## Read Instructions Completely Before Starting Installation

### Note

Not following the below steps could result in oxidation at cut points and will void the warranty. When cutting Fortress Railing Products, complete the following at cut points:

- Cut material to length and remove all metal shavings from the cut area
- File any sharp edges left by cutting. Thoroughly wipe and remove any filings, grime or dirt from the panel.
- Apply two coats of Fortress touch-up paint to the cut area.
- Be sure to remove any metal shavings from the work surface to prevent oxidation on the surface.

### Required Materials

Drill, 5/32" & 3/16" Drill Bit, T-25 Driver, Spring Punch, Tape Measure, Speed Square, Level, Epoxy, Metal Cutting Saw, File, Brush or Rags, Cardboard, Fortress Zinc Based Touch-Up Paint and Painters tape (use for mockup of rail bracket).

### Torx Safety Tips

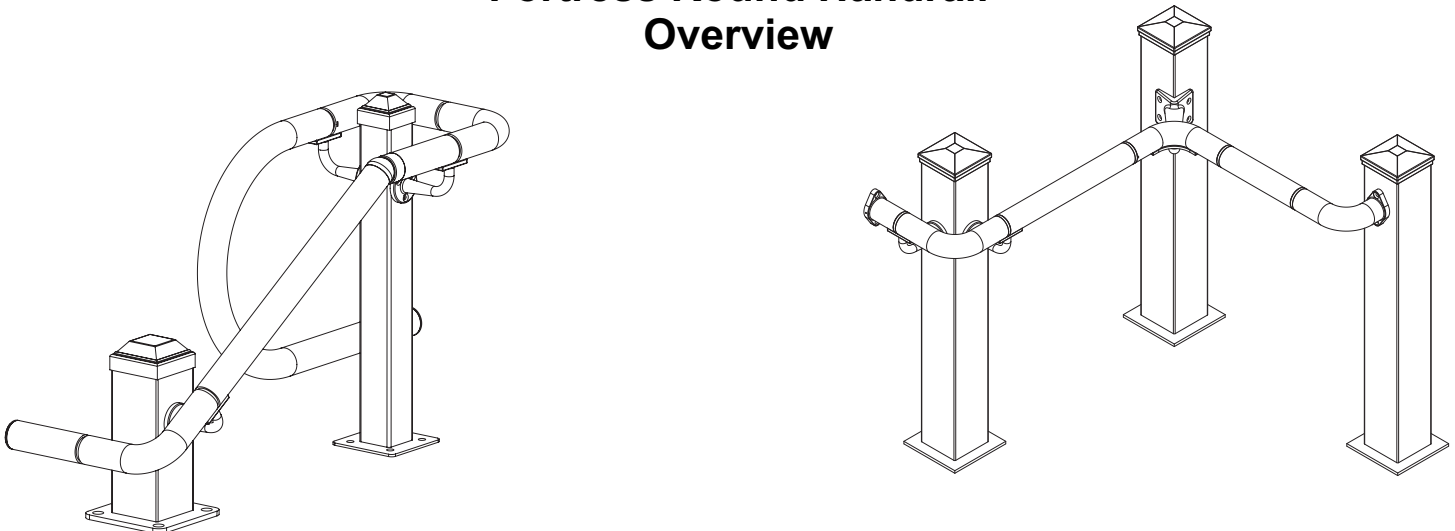
- Always use the lowest speed setting on drill.
- To reduce chance of bit breakage, start tightening with drill on low torque setting and work up until screw is secured.
- **Tip:** Pre-drill holes with 3/16" drill bit.

### Building Code notes:

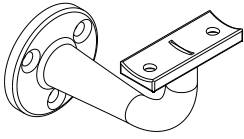
Please refer to **SMA building code section R311.7** for more info: [www.stairways.org](http://www.stairways.org)

- If handrails are not continuous, they shall extend at least 12in (305mm) beyond the top and bottom of the ramp segment and shall be parallel with the floor or ground surface.
- The clear space between the handrail and the wall shall be 1-1/2" (38mm).
- Top of handrail gripping surfaces shall be mounted between 34" and 38" (865mm and 965mm) above ramp surfaces.
- End of handrails shall be either rounded or returned smoothly to floor, wall, or post.
- Handrail shall not rotate within their fittings
- Max stair angle cannot be more than 38°.

## Fortress Round Handrail Overview

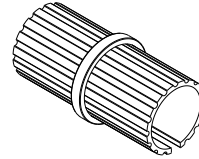


# Handrail Components



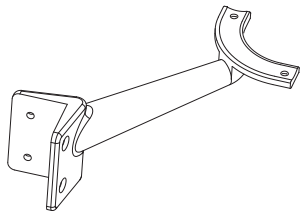
## Round Handrail Bracket

- Used to attach Round Handrail Components to posts and vertical wall surfaces.



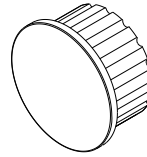
## Round Handrail Splice

- Used to join mating parts of the Round Handrail system that do not already have ribbed insert sections.



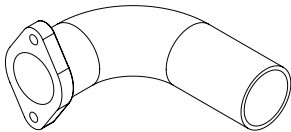
## Inside Corner Bracket

- Used to attach Round Handrail components to the corner wall surfaces.



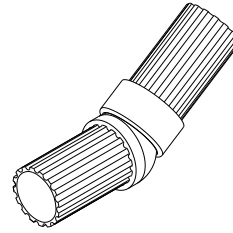
## Round Handrail Cap Plug

- Used to cap open ends of the Round Handrail System.
- Can also be used to terminate a Round Handrail into a vertical wall surface by pre-drilling at the molded center point and securing to wall surface with a screw.



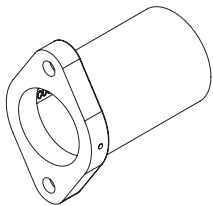
## 90° Termination Bracket

- Allows handrail to smoothly transition into wall or post.



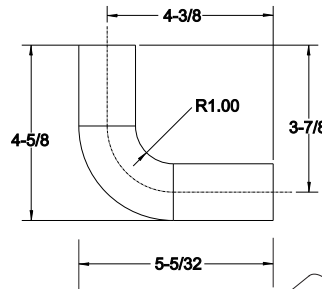
## Round Handrail Angle Adjuster

- Allows for smooth transitions between handrail section with changes in elevation.
- Angle adjustment range 0 - 45°



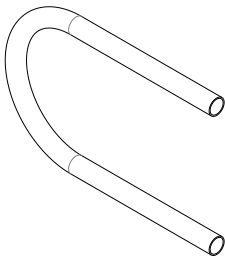
## Straight Termination Bracket

- Allows handrail to smoothly transition into wall or post.



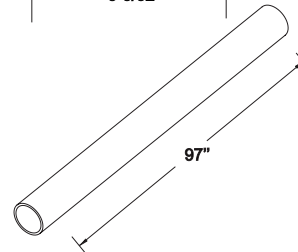
## Round Handrail Return

- Used to create corners and continuous rails around posts.
- Has two different straight lengths: 4-5/8" (marked with a notch) and 5-5/32"
- For a continuous wrap around a 2" Post, butt the two 4-5/8" lengths together.
- For a continuous wrap around a 3" post, butt the two 5-5/32" lengths together.



## Round Handrail 180° Loop

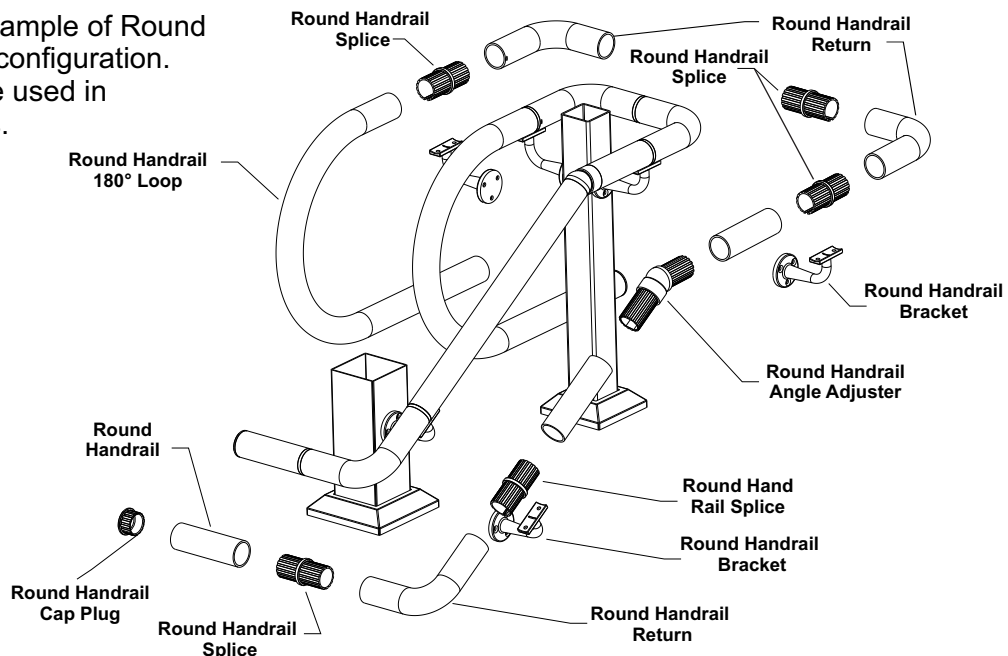
- Used to terminate handrails into posts.



## Round Handrail

- Used to create Handrail sections between brackets.

**NOTE:** Image is an example of Round Handrail in an angled configuration. Round handrail can be used in multiple configurations.



Example 1

**NOTE:** Image is an example of how to use Termination Brackets and Inside Corner Bracket. Round Handrail can be used in multiple configurations.

Straight Termination Bracket

Inside Corner Bracket

90° Termination Bracket

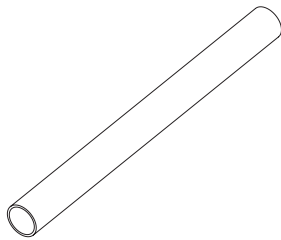
Example 2

## ASSEMBLY STEPS

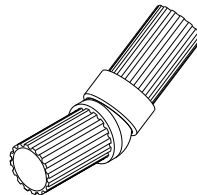
### STEP:1

### Mockup Middle Handrail Section

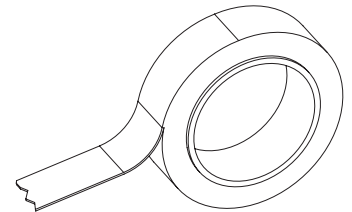
Parts needed:



Round Handrail

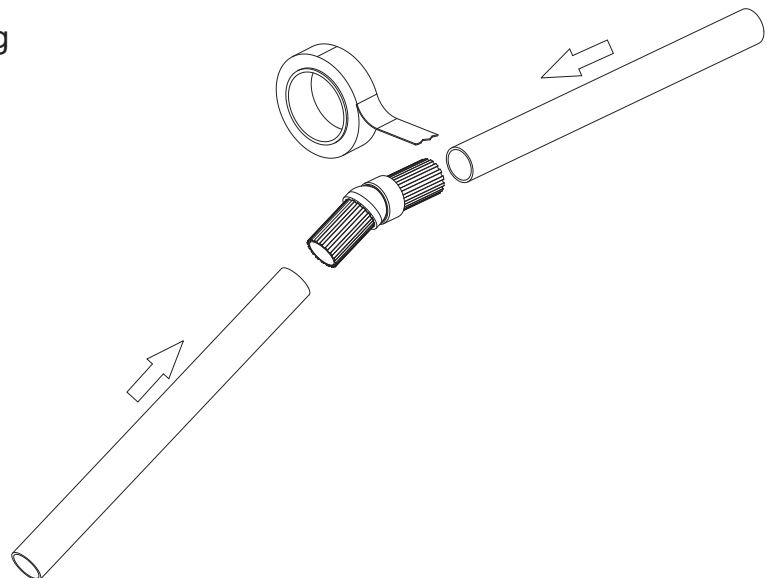


Round Handrail Angle Adjuster



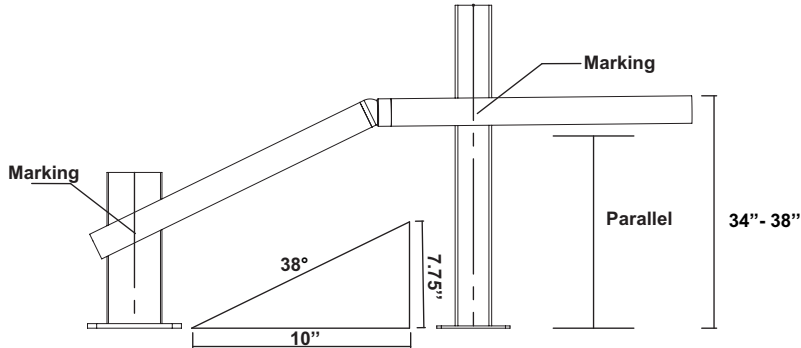
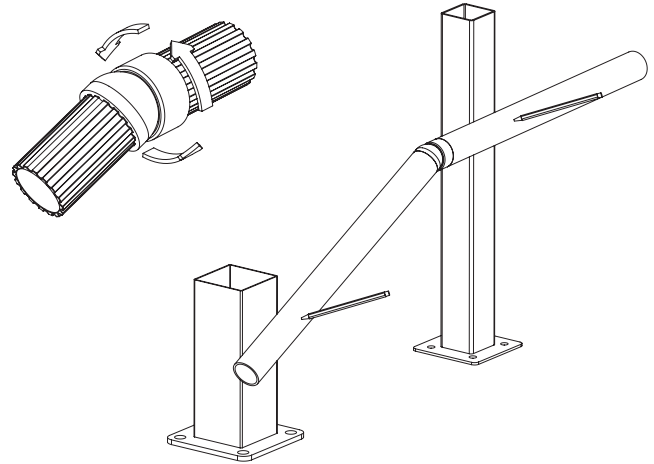
Masking Tape

- Assemble handrail to angle adjuster, splices and/or termination bracket (if you are not using round handrail mounting bracket to post).
- **NOTE: THIS IS A DRY FIT AND WILL NEED TO COME APART.** We recommend using masking tape to hold components together.



## STEP 2: Determine Handrail Angle

- Hold rail assembly against mounting surface (Wall or Post).
- Rotate the angle adjuster so that one side is parallel to ground and the opposite side has your desired hand rail angle.
- Twist and lock angle adjuster to hold your desired angle in place.
- Mark the location of mounting bracket on the rail.
- Brackets should be mounted in the center of the post.



### NOTE:

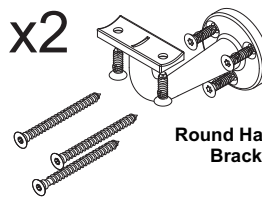
- Top of handrail gripping surfaces shall be mounted between 34" and 38" (865mm and 965mm) above ramp surfaces
- Max stair angle cannot be more than 38 degrees.

## STEP 3: Mounting Handrail Bracket

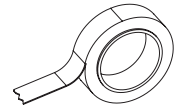
- Using your two guide lines (made in step 2), tape Round Handrail Bracket onto handrail.
- Position assembly on mounting surface and mark drill holes for bracket.
- Adjust Round Handrail bracket so that mounting surface is centered on post.
- Use spring punch to make hole location and pre-drill holes with 3/16" drill bit.
- Use 1/4 -20 X .75" t-25 self tapping flush mount screw or #12 x 2.5" wood flush mount screw T 25 drive (if mounting to wall or wood).

### Parts needed:

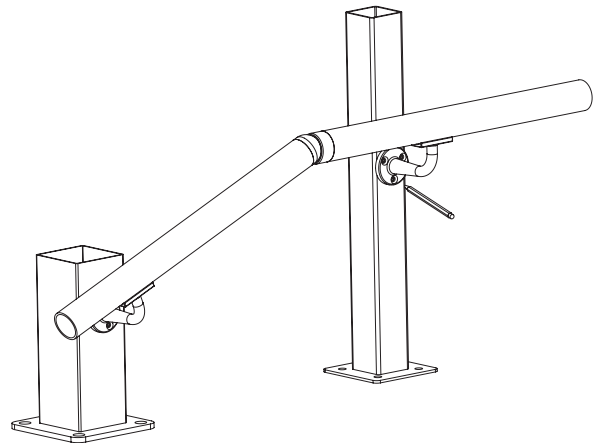
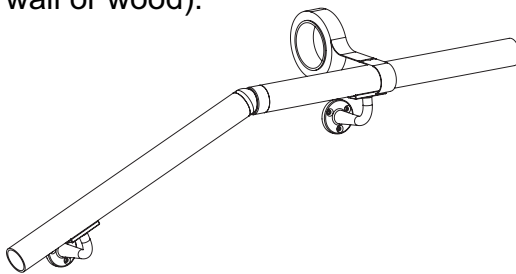
x2



Round Handrail Bracket

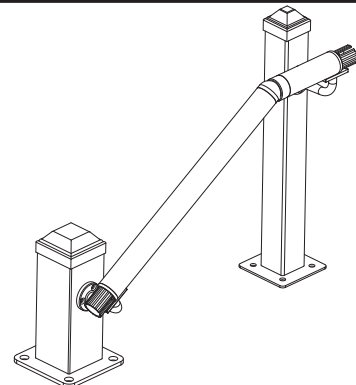


Masking Tape



## STEP 4: Cut Handrail

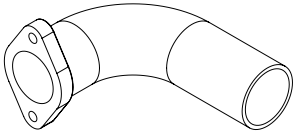
- Once handrail brackets are mounted, place handrail on brackets and mark your cut lines (if applicable, cut rails down so that splice segments are in the middle of the mounting bracket).
- Apply two coats of Fortress touch-up paint to the cut areas.



## STEP 4: Continuation of Handrail

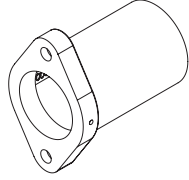
- Using the mock up assembly complete round handrail segments with the desired fittings.
- End of handrails shall be either rounded or returned smoothly to floor, wall, or post.

Parts needed:



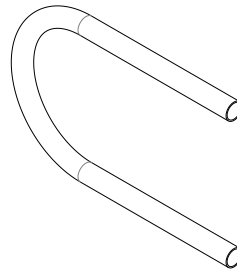
### 90° Termination Bracket

Allows handrail to smoothly transition into wall or post.



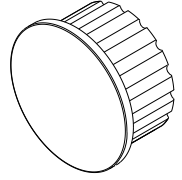
### Straight Termination Bracket

Allows handrail to smoothly transition into wall or post.



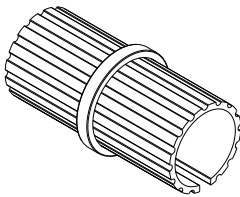
### 180° Return Loop

Used to smoothly terminate handrails.



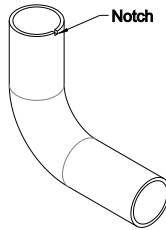
### Round Handrail Cap Plug

Used to cap open ends of the Round Handrail system.



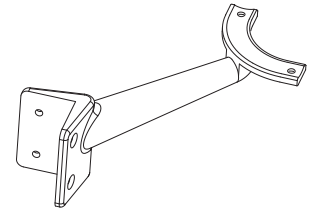
### Round Handrail Splice

Used to join mating parts of the Round Handrail system that do not already have ribbed insert sections.



### Round Handrail Return

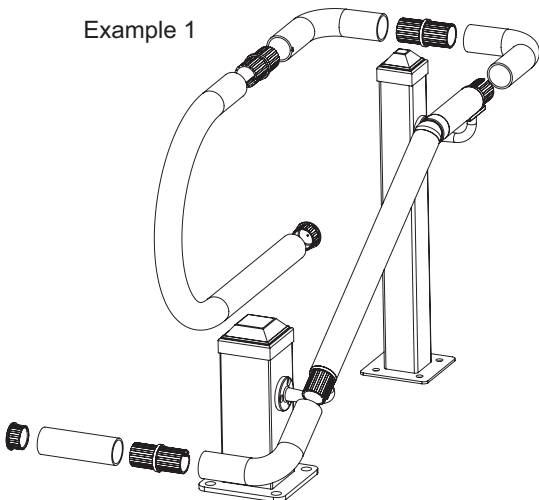
Used to create corners and continuous rails around posts. Has two different straight lengths: 4-5/8" for 2" post (**marked with a notch**) and 5-5/32" for 3" post.



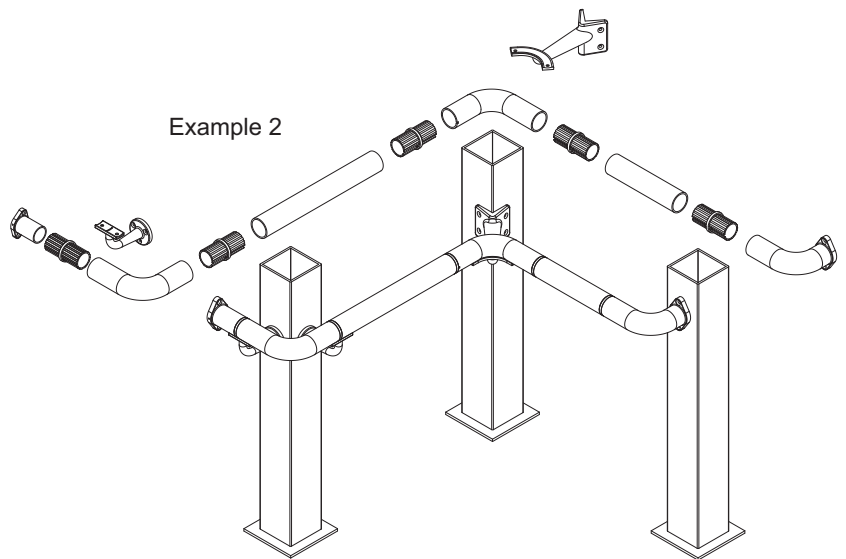
### Inside Corner Bracket

Used to attach Round Handrail components to the corner wall surfaces.

Example 1

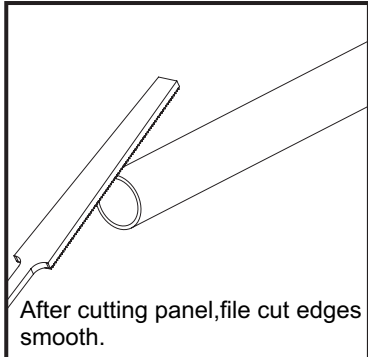


Example 2

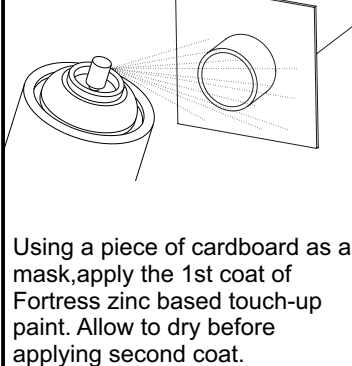


**NOTE: This is a dry-fit assembly and will need to come apart. We recommend using masking tape to hold components together.**

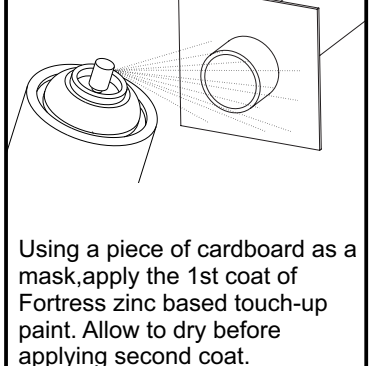
## STEP 5: Final Assembly Prep



### 1st Coat



### 2nd Coat



- Remove masking tape and use Epoxy to join segments and splices together.
- Place assembly on to mounting brackets and screw into place.
- Use 1/4 -20 X .75" T-25 self tapping flush mount screw to mount handrail to mounting brackets.