

# Installation Instructions for Fortress Square 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, 3/16" Drill Bit, T-25 Bit, 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

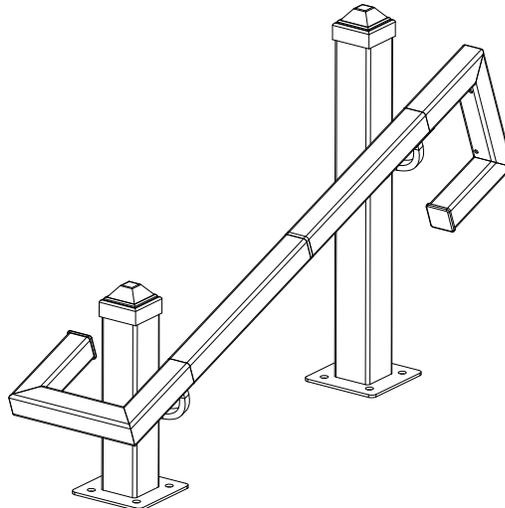
- Always use the lowest speed setting on drill.
- To reduce chance of bit breakage, start tightening with drill on low torque setting and work up until screw is secured.
- **Tip:** Pre-drill holes with 3/16" drill bit.

### Building Code notes:

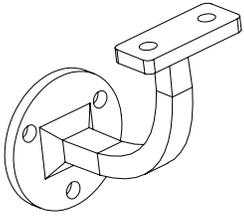
Please refer to **SMA building code section R311.7** for more info: [www.stairways.org](http://www.stairways.org)

- 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 Square Handrail Overview

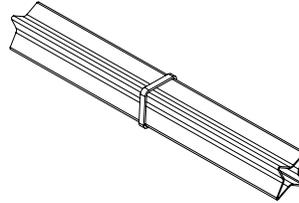


# Handrail Components



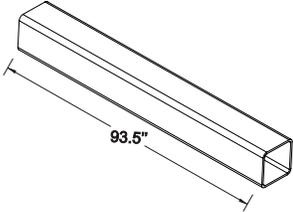
## Square Handrail Bracket

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



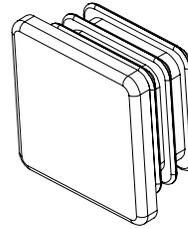
## Square Handrail Splice

- Used to join mating parts of the Square Handrail system.



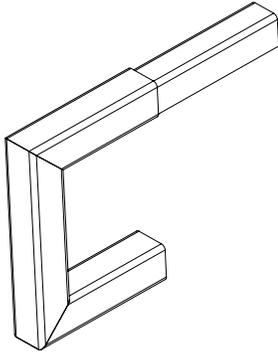
## Square Handrail

- Used to create Handrail sections between brackets.



## Square Handrail Cap Plug

- Used to cap open ends of the Square Handrail System.

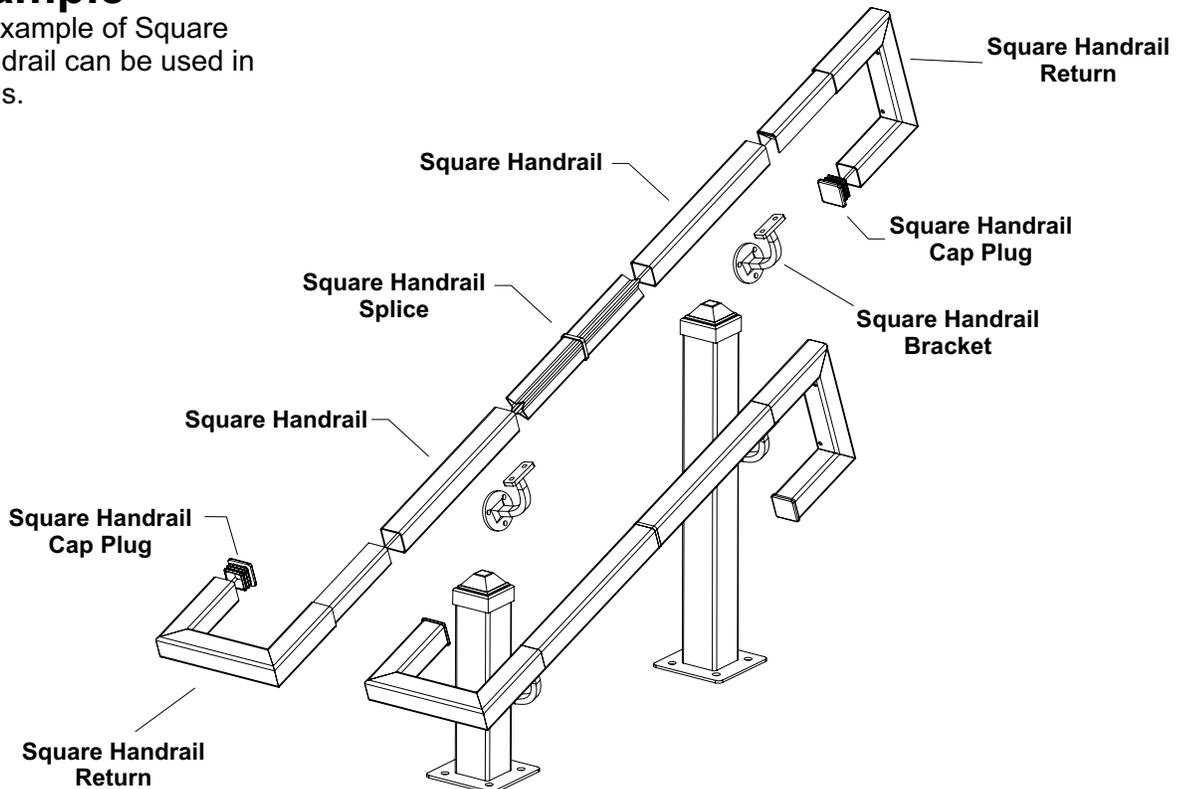


## Square Handrail Return

- Used to terminate handrails

# Handrail Example

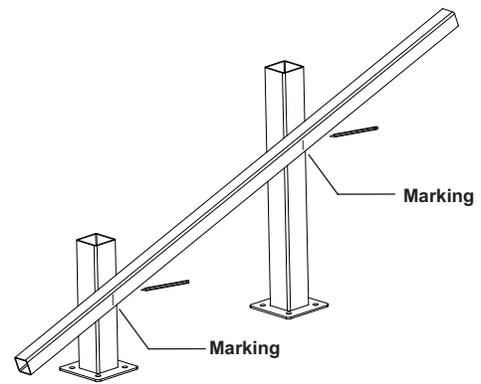
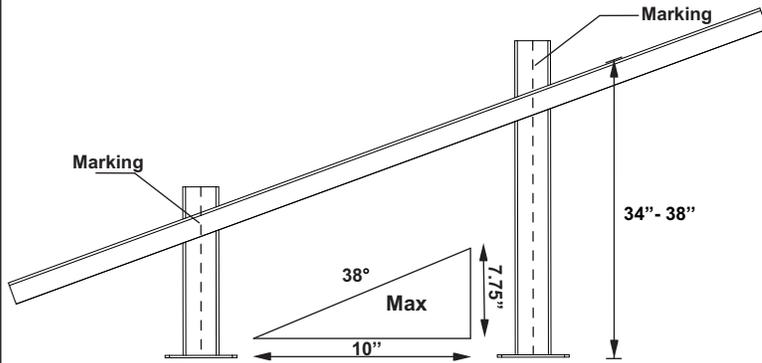
**NOTE:** Image is an example of Square Handrail. Square handrail can be used in multiple configurations.



# ASSEMBLY STEPS

## STEP:1 Determine Handrail Angle

- Handrail is sold in 93.5" lengths. If longer length is needed use square handrail splices. (use masking tape to hold segments temporarily together.)
- Hold rail against mounting surface (Wall or Post).
- Mark the center of post onto handrail. (This is a guideline for bracket placement.)
- 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°.

## STEP:2 Mounting of Handrail Bracket

- Using your guideline from step 1 place back edge of handrail bracket in front of marking. (see figure 1)
- Use masking tape to hold brackets onto handrail. (see figure 2)
- Place mockup assembly onto mounting surface and mark holes for bracket. (see figure 3)

**NOTE: If mounting to post, brackets should be mounted in the center of the post. Adjust bracket location if needed.**

- 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 wood).
- Use 3 screws per bracket.

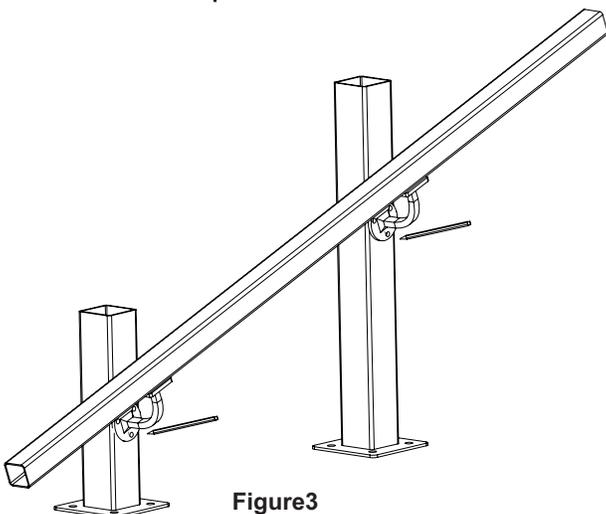
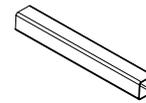
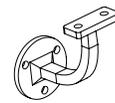


Figure3

### Parts Needed



Square Handrail



Square Handrail Bracket



Masking Tape

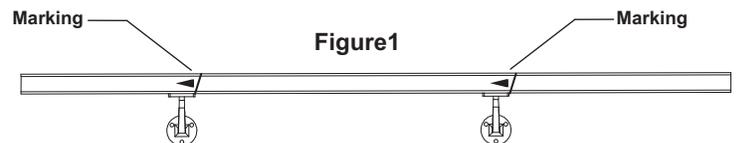


Figure1

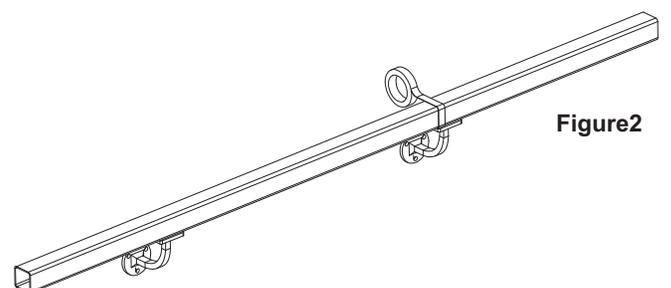
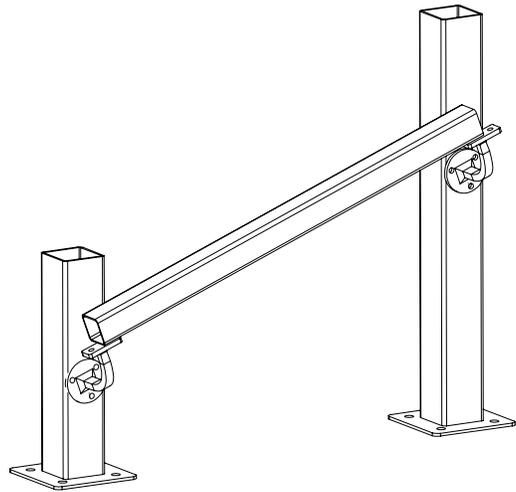


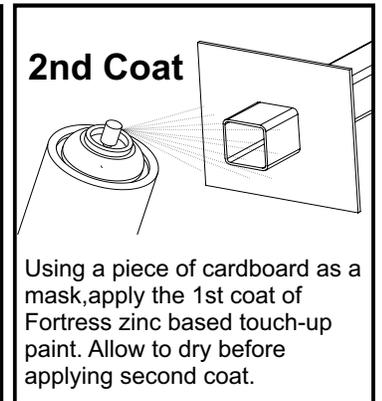
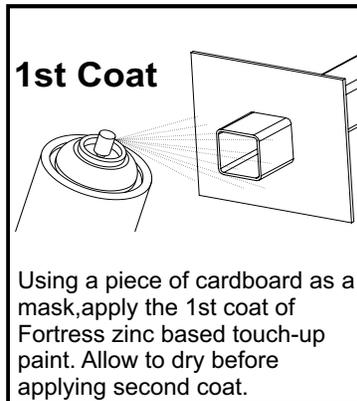
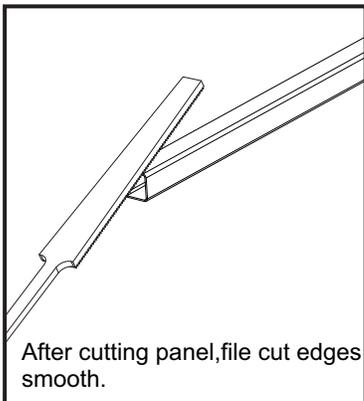
Figure2

### STEP:3 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.



### STEP:4 File and Paint Cut Edges



### STEP:5 Final Assembly

- Use Epoxy to join rail segments, splices together and Handrail Returns 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.

