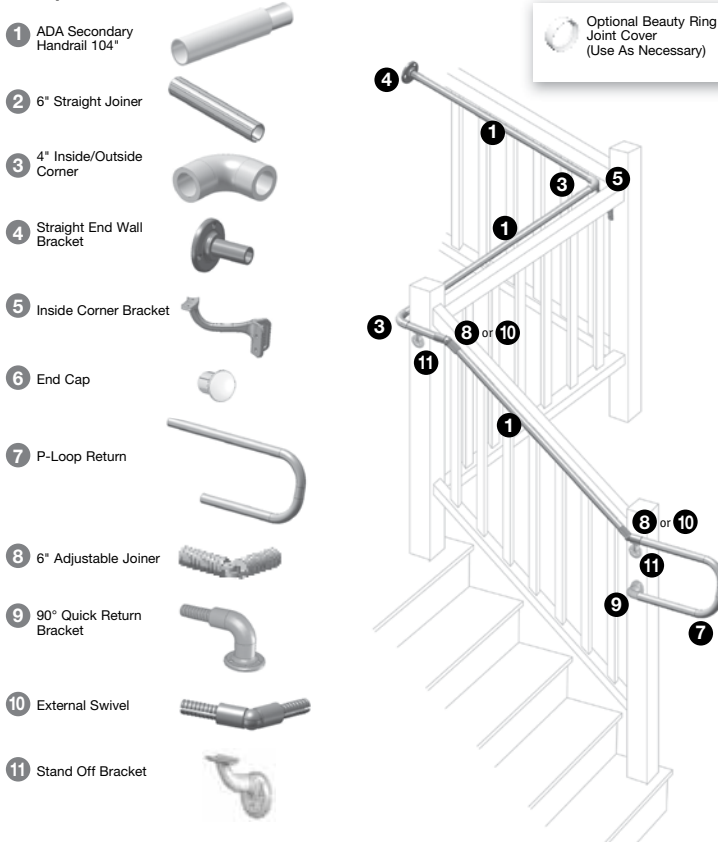


**Items You Will Need**

- Pencil
- Tape Measure
- Level
- #2 Square Drive Bit
- Drill
- Chop/Miter Saw
- Quick Clamps
- PVC Cleaner

**Components:**



**Prior to construction, check with your local regulatory agency for special code requirements in your area.**

**Start with an Inside Corner piece when applicable.**

**Guidelines:**

- The height of the secondary handrail must be installed between 34" and 38" above the surface, regardless of the height of the guard.
- We recommend that handrails be dry fit prior to final installation to eliminate cutting and fastening errors.
- **IMPORTANT:** The secondary handrail must be attached to a structural support. When installing mounting brackets on post sleeves, ensure the hardware attaches to the structural support.
- For maximum strength, brackets should be used at every post and every joint, or as closely as possible to the joint.
- An adhesive may be applied to further reinforce construction.
- Handrails must be supported every 6' on-center by a mounting bracket.

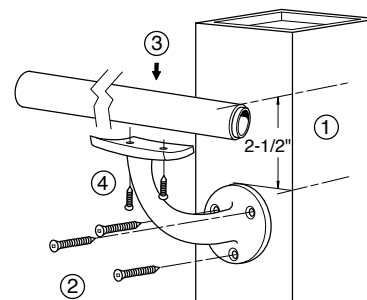
**Aluminum Offset Bracket (Line Post Mounting Bracket)**

**Step 1:** Measure 2-1/2" less than the handrail height to determine bracket position. Mark surface.

**Step 2:** Align the top of the bracket mounting plate with the mark made in Step 1. Drill 5/32" pilot holes and attach to the desired surface using the 2-1/4" screws provided.

**Step 3:** Clamp handrail to bracket at appropriate location to secure in place.

**Step 4:** Drill 5/32" pilot holes and attach handrail using the 1" screws provided.



End Caps optional

**Handrail with Aluminum Insert**

**Step 1:** Dry fit handrails to determine proper lengths prior to cutting rails.

**Step 2:** Measure and cut rails to proper lengths for all runs.

**Step 3:** Install to handrail component, following instructions for the components.

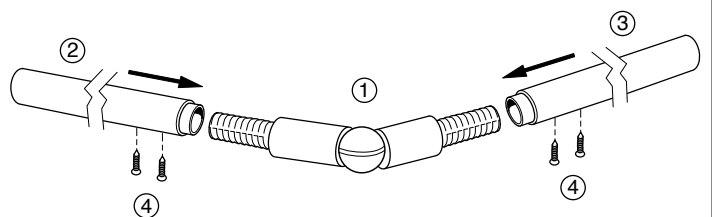
**External Swivel**

**Step 1:** Adjust external swivel to desired angle and install set screw.

**Step 2:** Cut handrail with aluminum insert to desired length.

**Step 3:** Insert external swivel bracket into the aluminum portion of the handrail.

**Step 4:** Pre-drill handrail and bracket with 5/32" drill bit and install 1" screw provided.

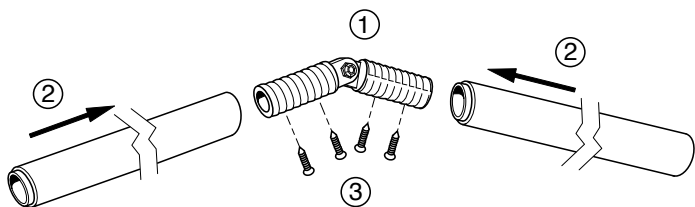


### Adjustable Joiner

**Step 1:** Measure the angle needed. Adjoin the two joiner halves together by inserting the bolt. Place the joiner halves at the desired angle, and tighten bolt to set.

**Step 2:** Cut handrails at  $\frac{1}{2}$  the desired angle. Slide handrails onto adjustable joiner.

**Step 3:** Drill  $\frac{5}{32}$ " pilot holes and fasten handrails together using 1" screws.

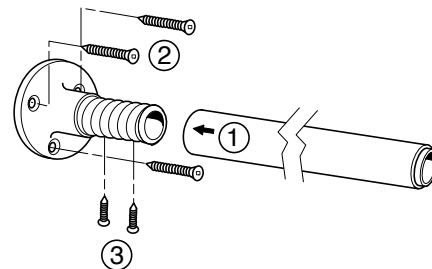


### Straight Aluminum Wall Mount

**Step 1:** Slide aluminum wall mount into handrail.

**Step 2:** Drill  $\frac{5}{32}$ " pilot holes into desired surface and attach wall mount using 2- $\frac{1}{4}$ " screws provided.

**Step 3:** Drill  $\frac{5}{32}$ " pilot holes into handrail and attach using 1" screws provided.

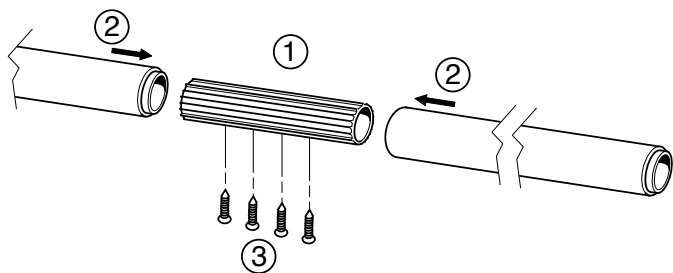


### Aluminum Joiner Kit

**Step 1:** Use aluminum joiner to fasten handrail components at straight joints.

**Step 2:** Slide joiner an equal distance into both components. Drill  $\frac{5}{32}$ " pilot holes and fasten using 1" screws provided.

*Note: All joiners should be supported by an aluminum bracket as closely as possible to the joint.*



### P-Loop Return

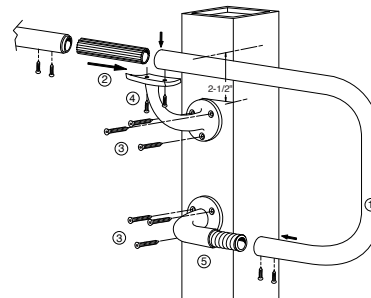
**Step 1:** Attach top bracket at desired location using appropriate connectors.

**Step 2:** Cut P-Loop to desired length.

**Step 3:** Connect P-Loop to secondary handrail tube using the appropriate joiners (Straight, Adjustable joiners or External swivel).

**Step 4:** Set P-Loop on top of bracket and pre drill with drill bit and install 1" screw provided.

**Step 5:** Install desired lower bracket.

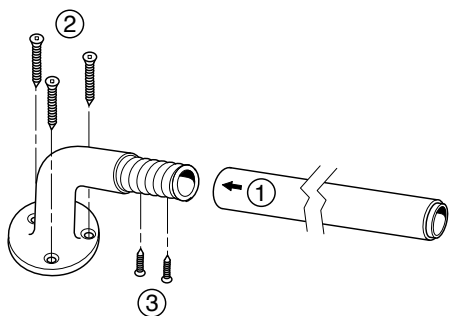


### 90° Post Return

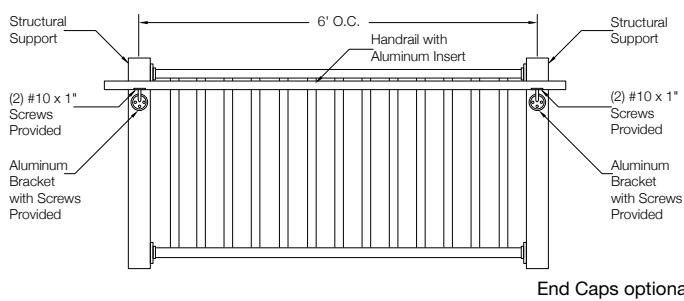
**Step 1:** Slide 90° post return into handrail.

**Step 2:** Drill  $\frac{5}{32}$ " pilot holes into the desired surface and attach post return using 1- $\frac{1}{2}$ " screws provided.

**Step 3:** Drill  $\frac{5}{32}$ " pilot holes into handrail and attach using 1" screws provided.



This handrail configuration has been tested and meets the requirements of 2009 IRC.



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