

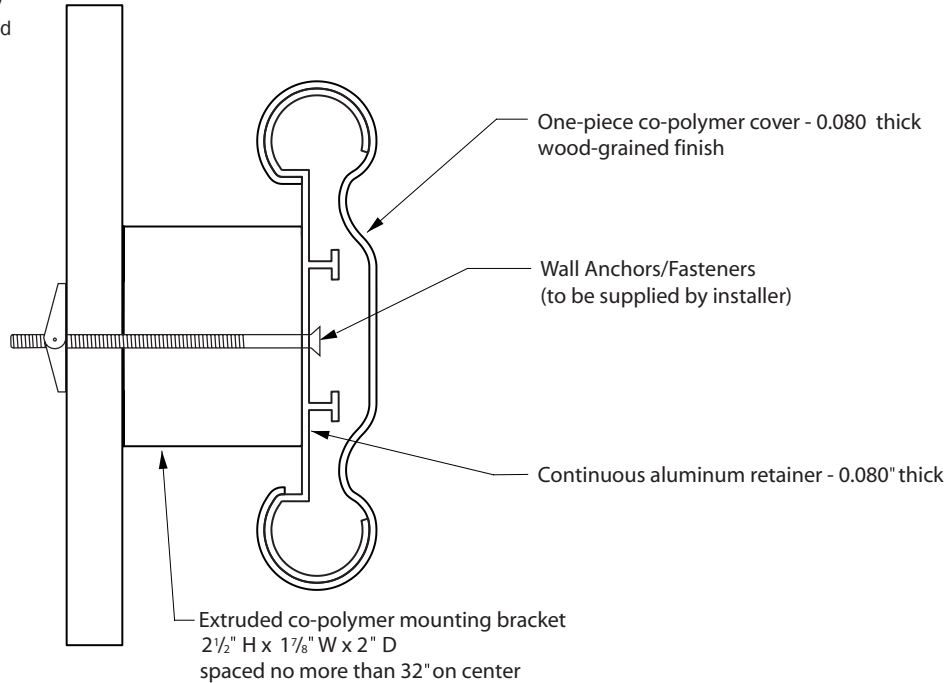
## Installation Instructions

### Catena Handrails



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Note: Installation of Kwalu handrail systems generally requires at least two skilled people working together.



#### Materials (supplied with order):

- Aluminum Retainer – 12' long
- Polymer Wall Returns
- Polymer Inside Corners\*
- Polymer Outside Corners\*
- Polymer Snap-On Cover – 12' long
- Polymer Mounting Brackets
- #20 x 1/4" Zinc-Plated Bolts, Nuts and Washers
- Zinc-Plated Splice Plates

\* These components are optional and may not be included in your handrail system. Refer to Kwalu quotation for bill of materials included in your system.

#### Required Tools (supplied by Installer):

- Safety Glasses
- Pencil/Felt Tip Marker
- 6' Level and "Torpedo" Level
- Tape Measure
- Fasteners for Attaching Mounting Brackets to Walls – Use Appropriate Type for Wall Conditions Present
- Minimum 10" Power Miter Saw w/ 80-Tooth Carbide Blade
- Power Drill and Drill Bits
- '0000' Fine Steel Wool
- Socket Wrench
- Laser Level and/or Chalk Line

#### Delivery, Storage and Handling:

1. All materials will be delivered to the jobsite in original unopened factory packaging. Upon delivery, carefully inspect all packages to ensure that all required materials have been delivered in an acceptable condition.

2. Store all materials flat in a dry, environmentally controlled area between 65° F and 80° F, and protected from the elements as well as direct sunlight.
3. Do not install handrail systems until all facility finish work has been completed, including painting.
4. All materials must be acclimated to installation conditions at least 24 hours before installation is to begin.

**Preparation:**

1. Ensure that all wall surfaces and wall protection system components are free from moisture, oil, dust, dirt, and wet or chipping paint, etc.
2. Ensure that all walls are straight, plumb and free of imperfections.

**Special Instructions:**

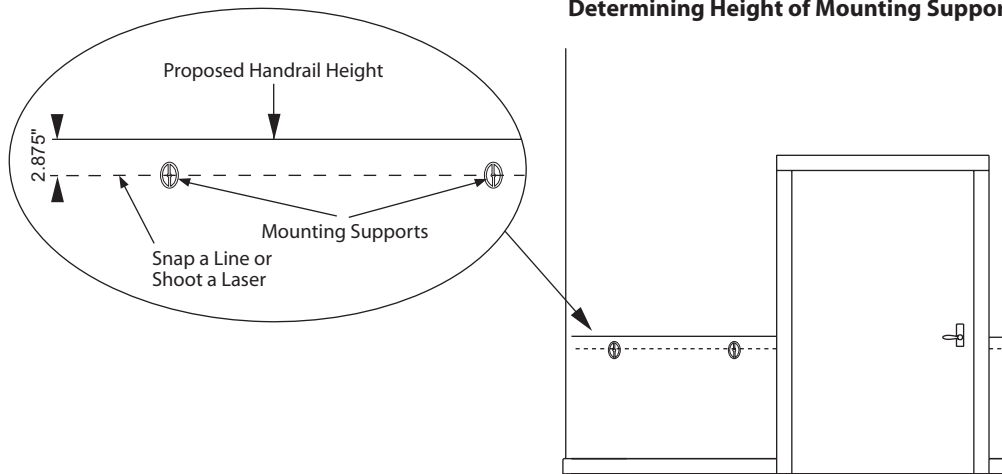
1. For proper cutting, use only sharp, fine-toothed carbide tipped blades in miter saws.
2. Installation of Kwalu handrail systems generally requires at least two skilled people working together.
3. The installed handrail system must withstand both downward and pulling forces. It is, therefore, essential that the handrail be installed on and into materials that will withstand these forces. Anchoring to poorly secured or damaged wall substrates will limit the forces that this handrail system can withstand.
4. Mounting brackets must also be applied perfectly level to one another to obtain the result of a straight and level finished handrail system. Layout and placement of brackets prior to handrail mounting is therefore essential.

**Installation:****1. Lay out the Handrail Installation on Walls**

- a. Locate the walls to receive handrails, and locate on each wall the height to which the top of the handrail system is to be installed. Installation height will vary with code requirements, applications, and preferences, but is typically between 32" and 36" above the finished floor.
- b. Measure down 2 7/8" from the top of the handrail and mark the wall lightly. This is the center point of the screw hole through the mounting brackets. Snap a chalk line, draw a level line or use a laser level to mark this height across the entire wall (see **figure 1**).
- c. Spacing of mounting brackets is not to exceed 32" on center. For drywall or plaster walls, it is strongly recommended that, wherever possible, mounting blocks are fastened to metal or wood studs, or horizontal blocking between studs, for maximum strength. Where studs or blocking are not available, use heavy-duty toggle bolts (such as 1/4" x 4") to attach handrail system to drywall or plaster. For masonry walls, use the appropriate masonry anchor. (As Kwalu cannot know the appropriate fastener type to use in each application, these fasteners are to be supplied by the installer.)
- d. Determine the desired set-back between door frames, window frames, etc., and handrail returns (this distance will vary with preference, but is typically between 0" and 3"). Measure the entire distance of the wall section, from door frame to door frame minus set-backs at door frames, and record that measurement.

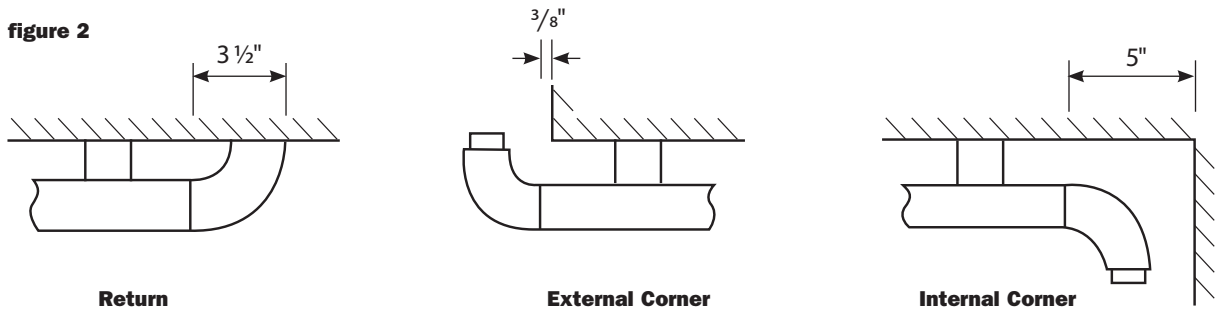
**2. Prepare Aluminum Retainer for Installation**

**figure 1**  
Determining Height of Mounting Supports



- a. Using the measurement for the total length of the wall section being worked on, previously noted in section 1, step d, subtract 3 1/2" for each return to be mounted. Where inside corners are used, subtract 5" from the full-wall width measurement. Where external corners are used, add 3/8" to full-wall width measurement. The resulting measurement is the length of the aluminum retainer required to span the wall from one return/corner to the other. (see **figure 2**).

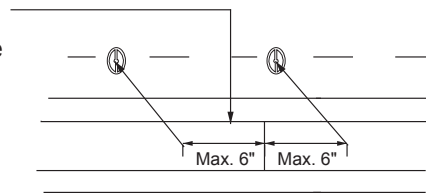
**figure 2**



- b. Cut an aluminum retainer to length, being careful to make square, accurate cuts. If the distance is longer than 12', you will need to use at least two pieces of retainer. Retainer joints will require one metal splice plate bolted to both pieces of retainer, and mounting brackets at a maximum of 6" away from each side of the joint. **All cut ends of aluminum retainer must be completely deburred prior to installation to remove all cut hazards and extra material that may prevent square, tight joints.** See **figure 3**.

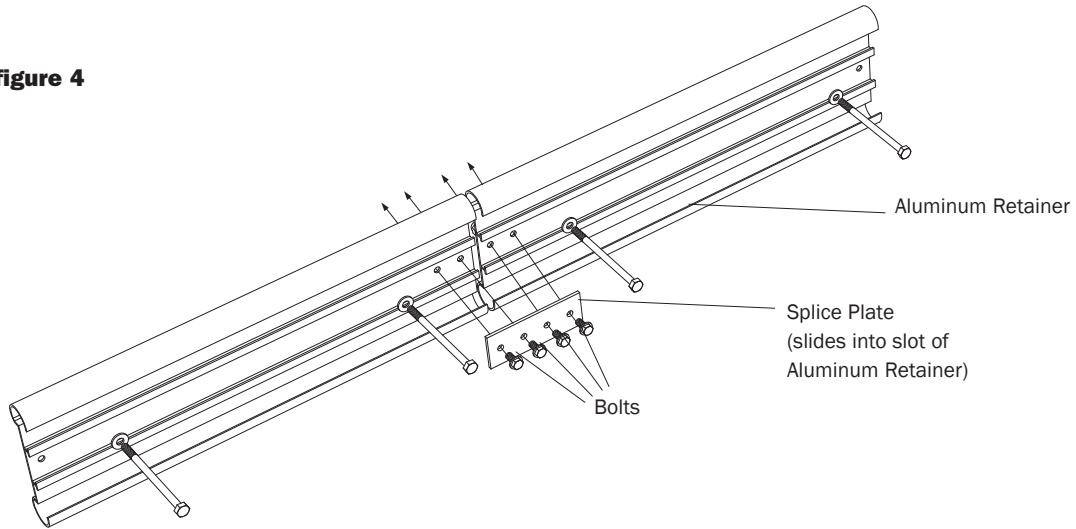
**figure 3**

Mounting brackets must be placed within 6" of each side of joints in handrail boards



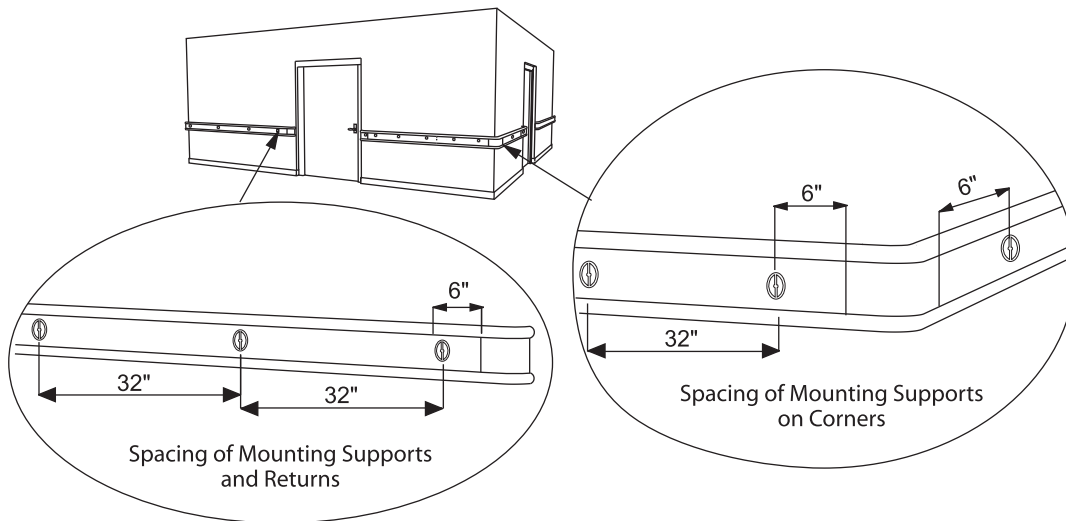
- c. Place the retainer face up on the floor or work surface. If more than one length of retainer is used, slide one splice plate into center slot in the front of the retainer, and over any retainer joints, and fasten to both pieces of retainer using the bolts provided. Ensure joints between retainer lengths are tight and square. See **figure 4**.

**figure 4**



- d. Lay out the mounting bracket placement across the length of the retainer. One bracket must be placed approximately 6" from each end of the retainer, and approximately 6" from each side of any joints in retainer. Between ends and joints, bracket spacing must not exceed 32" on center. See **figure 5**.

**figure 5**

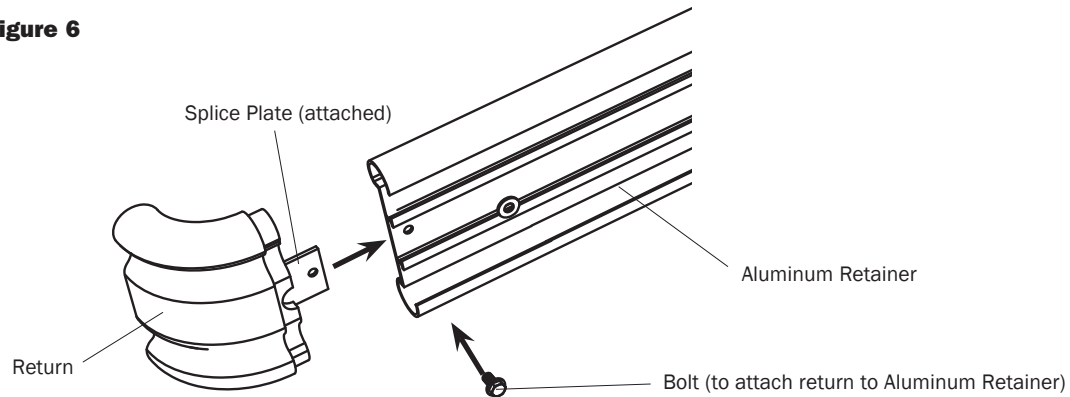


- e. Drill holes for fasteners at each spot marked for brackets, making sure hole is at exact center point of retainer.

### 3. Assembling and Mounting Handrail System on Walls

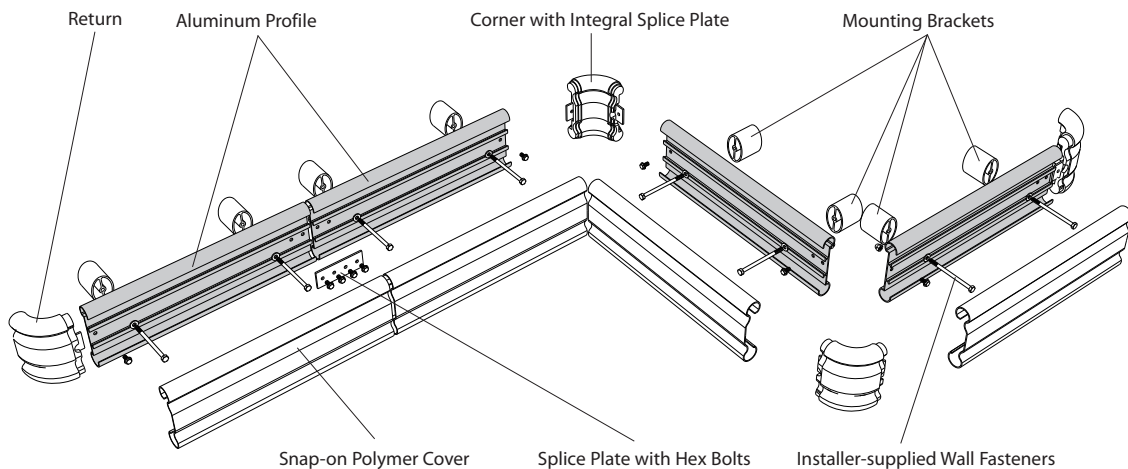
- Position the prepared aluminum retainer on the wall, without brackets, making sure it is spaced equidistant from each door frame, and so the previously marked line on the wall can be seen through the fastener holes drilled in the retainer. Mark the wall through each of these holes, then drill holes at each mark to accommodate installer-supplied wall/bracket fasteners.
- Fasten returns to ends of aluminum retainer by sliding the pre-attached metal splice plate into the slot in the middle of the aluminum retainer. Bolt the splice plate and return to each end of the retainer, making sure each return is tight and square against the ends of the retainer. See **figure 6**.

**figure 6**



- Feed installer-supplied wall/bracket fasteners through holes in retainer and through hole in center of polymer mounting brackets.
- Hold entire system up to the wall, lining up wall/bracket fasteners with marks/holes in wall, and tightly fasten system to the wall. See **figure 7**.

**figure 7**



- e. Where necessary, turn brackets so each is 2 ½" tall and 1 7/8" wide.
- f. Measure distance between returns. Cut polymer snap-on cover to length, ensuring that the cover is not compressed during cutting. Compressing cover during cutting will result in cuts that are not straight or square.
- g. Lightly scrape cut edges of handrail cover to remove any burrs or roughness. This can be done by scraping with a utility knife or with a fine rasp.
- h. Position cover over retainer, slipping the top of the cover over the top of the retainer, then snapping the bottom of the cover over the bottom of the retainer.

#### **4. Clean-up**

- a. Polish out any scratches in the surface of the handrail using '0000' fine steel wool.
- b. Wipe down the entire surface with a soft, clean cloth and a not-toxic, non-abrasive cleaning agent, such as Simple Green® or a citrus-based liquid.