HELPFUL HINTS
Read these instructions thoroughly before beginning the assembly.

- Do not lay components on abrasive surfaces.
- Do not use excessive force while assembling components.
- If any components are missing or defective, please call us at 800-233-8990.

TOOLS REQUIRED
Hacksaw or chop/mitre saw with carbide-tipped cutting blade
- Drill
- Phillips head screwdriver or bit
- 3/8" masonry drill bit (for concrete installation)
- 3/4" drill bit
- Tape measure
- Angle finder
- Quick-clamps
- Pencil
- Adhesive

Recommended Adhesives
Aluminum Bonding:
- Loctite® Metal/Concrete Epoxy™
- Gorilla® Epoxy - Impact Tough®
- J-B Weld® - 2-Part Epoxy
- Loctite® Extra Time Epoxy

Tip: Stainless steel fasteners are recommended to prevent future rust streaking.

HANDRAIL APPLICATIONS
Stringer Lay-Out for Handrail Transition Bends
It is recommended that each of the handrail components be dry fit before final installation to eliminate cutting and gluing errors.

When cutting handrail lineals, always cut the aluminum using a miter saw with a carbide-tipped blade with at least 60 teeth.

Determine layout of handrail and the requirements at termination points, transitional bends and/or returns to walls or posts. Spacing of brackets should be a maximum of 6’ on center.

Determine desired handrail height. Finished handrail height should be 34” to 38” for commercial and residential applications measured from the leading edge of the stair tread or landing to the top of the handrail.

The following instructions will position the handrail at approximately 35° above the landing or stair tread. You may need to make adjustments for your specific application or to meet local building codes.

Refer to the “Suggested Layout” inside for helpful information to get organized.

BEFORE YOU BEGIN

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Calculated Angle in Degrees
**ATTACHMENT TO CERTAINEED VINYL POST SUPPORT SYSTEM**

For ramp applications, we recommend using CertainTeed FLAT post support kits and FLAT routed posts.

Once post supports are in place, replace one of the standard EZ Set brackets from the upper location with a special handrail EZ Set bracket and attach at approximate height position. Install as a minimum the posts and top rail(s) guardrail system.

For each post, draw a horizontal pencil line across the post at the point on the downward side where the (lower) rail meets the post.

For the bottom end post at the base of the stairs or ramp, you'll need to transfer the angle of the guardrail diagonally across the post and then connect with a horizontal line.

Mark bracket attachment point in center of each post downward from line. Location of handrail bracket when used with 36” guardrailing is 4-1/4” below line; for 42” guardrailing, it is 10-1/4” below line.

NOTE: Vinyl posts alone do not provide adequate fastener retention. If not using a special EZ Set bracket, you must provide a wood or composite block inside post at bracket locations for proper fastening retention.

**ATTACHMENT TO CERTAINEED VINYL SLEEVE-OVER SYSTEM**

Using a level and a tape measure, lightly mark the location of the top of the handrail onto the wall or post, at the mounting position and snap a chalk line from top to bottom.

Note: For most applications, the top of the handrail would be 34”-38” above the nose of the stair tread or standing surface.

Mark the mounting locations for the brackets on the post at the appropriate height using a scrap sample of handrail as a guide. Make the top of the handrail consistent at all locations marked above.

Install the mounting bracket to the post with fasteners best suited for your application.
# Attaching Handrail to Brackets

## Attachment to Concrete Wall

Mark a point 31-1/4” upward vertically from the leading edge of top and bottom stair tread.

Snap a chalk line between marks. Mark locations for brackets along line (6’ maximum spacing and 1’ maximum overhang beyond last bracket).

Using a 3/8” masonry drill bit, drill holes 2-3/4” deep at each location.

Insert concrete wall anchors (not included) and attach handrail brackets (do not tighten completely at this time to allow for adjustment).

## Attachment to Wood Wall

Ensure that wall is structurally sound. Follow instructions for concrete wall except bracket attachment point(s) must be on a stud where the string line crosses. Mark bracket attachment locations (6’ maximum spacing).

Substitute 3/8” x 2-1/2” long lag screw (not included) in place of the concrete anchor to attach handrail brackets.

## Attaching Handrail to Brackets

Measure the distance from center of top bracket to center of bottom bracket along angle (distance “X”).

Add any needed additional length to this measurement for handrail extension beyond brackets or posts at both the top and bottom of the section (1 ft. maximum overhang per end; distance “Y”).

**Note:** All splices of handrail must occur within 6” of brackets (no splices beyond the last bracket in a run).

Cut and fit the 1-1/2” handrail to follow your layout. Starting at the top of the handrail installation and working towards the bottom, dry assemble the various handrail components according to your diagram. Components can be temporarily clamped in place to the mounting brackets installed to the post or wall, until all final adjustments are made. Mark and trim all handrail components to proper length and test for tight fit.

When cutting handrail lineals, always cut the aluminum using a miter saw with a carbide-tipped blade with at least 60 teeth.
# Component Installation

## Post Return

1. Align the post return according to the handrail layout line and mark attachment hole positions (Fig. 1).

2. Pre-drill and attach post return with three fasteners appropriate for the material to which it is being mounted.

3. Insert the provided joiner in the post return and dry fit the lineal in place.

4. After railing installation has been dry fit, disassemble and apply aluminum adhesive and permanently mount the handrail lineal (Fig. 2).

**Tip:** If your handrail is being mounted with a post return at each end, cut lineal to length and assemble before attaching post returns to mounting surface.

## Straight Return

1. Insert the straight return into the lineal, dry fit to determine the finished length and cut to fit.

2. Dry fit and check length.

3. Attach the assembly to the mounting surface using the appropriate fastener through middle of straight return.

4. Apply aluminum adhesive and insert the straight return into the handrail lineal (Fig. 3).

## Straight Joiner

**Note:** For maximum strength, all handrail joints should be supported by a handrail bracket at the joint or at the nearest possible location.

1. Cut handrail lineals to length.

2. Apply aluminum adhesive and slide the internal joiner half way into the aluminum lineal (Fig. 4).

3. Permanently attach the first handrail lineal to the nearest handrail bracket.

**Tip:** If the joint is not supported with a bracket, allow enough time for the aluminum adhesive to cure prior to installing the second lineal.


## Internal Adjustable Joiner

**Note:** All adjustable joiners should be supported by a handrail bracket as closely as possible to each side of the joint.

1. Measure the angle of the joint and cut lineals accordingly. Dry fit both handrail lineals, making sure that the miter cuts match up properly.

**Tip:** While lineals are in place, reference marks can be made on the lineals and mounting hardware to ensure proper alignment during final installation.

2. Assemble and position the adjustable joiner on the outside of the handrail and tighten the bolt at the appropriate angle (Fig. 5).

3. Dry fit the assembly and adjust if necessary.

**Tip:** Use the joiner bolt as a reference to keep the lineals in proper alignment by aligning both mitered ends with the center of the bolt.

4. Apply aluminum adhesive and assemble the joint.

5. Permanently attach the handrail lineals to the mounting support.

**Note:** Joint should be clamped in place until adhesive has had time to cure.
**Component Installation (continued)**

**External Adjustable Joiner**
1. Measure the angle of the joint and cut lineals accordingly. Dry fit both handrail lineals, making sure that the lineals match up properly.

2. Assemble and position the adjustable joiner on the outside of the handrail and tighten the bolt at the appropriate angle (Fig. 6).

3. Dry fit the assembly and adjust if necessary.

4. Apply aluminum adhesive and assemble the joint.

5. Permanently attach the handrail lineals to the mounting support.

**Note:** Brackets are required on both sides of the adjustable joiner.

Joint should be clamped in place until adhesive has had time to cure.

**90° Corner**
1. Dry fit the two handrail lineals. The handrail lineals to be joined should extend far enough to allow for scribing and final cutting (Fig. 7).

2. Place the corner in line with each lineal. Scribe and cut the lineals (Fig. 8).

3. Insert the joiners into the corner. Dry fit the assembled corner with the lineals. If all components are aligned properly, make reference marks (Fig. 9).

4. Disassemble the corner. Apply aluminum adhesive to the inside of the corner and the inside of the lineals. Reassemble the components using the reference marks from Step 3 as a guide. Clamp in place and allow to cure.

5. Permanently attach the lineals to the mounting brackets with the screws provided.

**180° Return Loop**
1. Position handrail loop in desired location. Dry fit the loop in place to make any necessary marks for cutting.

2. Once cuts have been completed and loop is ready to install, attach to handrail system using a straight or adjustable joiner following the instructions outlined in this guide.

3. Attach handrail loop to the mounting surface using two handrail brackets following the instructions in this guide (Fig. 10).

4. To complete the installation, mount a handrail end cap to the end of the handrail loop following the instructions in this guide for the handrail end cap.

**Inside Corner Bracket**
1. Place a mark 2-3/4" below the handrail layout line to establish placement of the inside corner bracket (Fig. 11).

2. Align the top surface of the bracket with the mark made in Step 1 and attach to the mounting surface using appropriate fasteners (Fig. 12).

3. Clamp the handrail corner assembly to the inside corner bracket. Using a 13/64" bit, pre-drill and attach the bracket using the provided screws.
HANDRAIL COMPONENT SYSTEM

- Complies with ADA (Americans with Disabilities Act) requirements for grippable handrails
- Aluminum construction reduces bowing and provides enduring strength
- 1-1/2" diameter gripping area
- Continuous handrail runs
- Safe for stair and ramp applications
- Functional finishing touches: post and wall returns, end caps, return loops and a convenient straight joiner
- Unique adjustable joiners accommodate any transition – 0° to 90° bends
- Installs easily on site with no preformed fittings
- Ideal for use with EverNew® railing systems
- Virtually maintenance free
- Lifetime limited warranty
- EZ Set bracket kit available for attachment to routed system

Note: Handrail depicted is not free standing and must be anchored to walls or guardrail using handrail bracket assembly (74028/74029). Space a maximum of 6’ on center and as close as possible to both sides of any joint.