BIOSHIELDUV®

CR Stair Handrail Kit Installation Guide

MODELS COVERED **HR1** **HR2** **HR3** **HR4** **HR5**

⚠ **Read every instruction and every safety message in this guide before you install or service this product.** Keep this guide with the equipment.

> Lisez toutes les instructions et tous les messages de sécurité avant d'installer ou d'entretenir ce produit. Conservez ce guide avec l'appareil.

⚠ WARNING

Improper installation can lead to failure of the rail system, which can cause serious injury or death. You and your installer make the final determination of the means and methods appropriate for your site. If you are unsure or uncomfortable with any step, hire a licensed and bonded contractor.

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Safety precautions

Read every message in this section before you touch any component. They apply to every model this guide covers and to every installation surface.

WARNINGThe hardware we ship may not be the hardware your site needs — Please make sure the hardware and tools we provided will be right for your install (read the means & methods disclaimer). IT IS POSSIBLE YOU NEED DIFFERENT HARDWARE & METHODS.

Please take your time to do your installation. If you are unsure or uncomfortable with the installation, we highly recommend hiring a licensed and bonded contractor.

WARNINGAnchor strength depends on the hole and the concrete — The strength of the anchor is dependent on the hole size & concrete integrity. A hole that's too big, or concrete that's not up to standard grade, can make the anchor wiggle or possibly come out. This is what can cause a rail to fail & fall over.

CAUTIONEdge distance and building code — Please adhere to local & statewide building code. The recommended distance from the edge is based on standard-grade concrete (2500 psi). If your concrete is 'high-strength' concrete, the edge distance can be reduced. See ICC Chapter 19, Table 1908.2.

Wrong size? Do not install it — No returns needed. Contact us and the correct size is delivered in 2 days. Call or text (800) 420-0432 — we can accept text photos.

Installing multiple rail kits? Talk to us first — We offer free help and a drawing to make it easier to connect multiple rail kits. Contact us before you start.

Means and methods disclaimer

In no event shall CR Fence & Rail Inc have any responsibility, control over, charge of, responsibility, or liability for the means, methods, techniques, sequences, or procedures, or for safety precautions in connection with the installation of the railing, since these are solely CM/GC's, Subcontractor's, and Owner's responsibilities.

Each installation site differs widely ranging from the construction & condition of attachment points, local building & safety code, local construction code, and local means & methods.

CR Fence & Rail Inc's installation guide (whether it be in text, illustration, video or in support discussion) constitute for ideal installation condition. There is no ideal installation in real life. There is no substitution for consulting a local licensed contractor, architect, engineer, nor code inspector.

CR Fence & Rail Inc's installation hardware and tools are provided as building material and does NOT constitute as the specific nor final installation hardware. Once again, you and

your installer must make the final on-site determination to the specific means and methods of installation appropriate for your installation.

Following CR Fence & Rail Inc's instruction does NOT constitute as proper installation as you and your installer must make the final means & method determination. Improper installation can lead to failure of rail system which can cause serious injury or death.

If your printed booklet names a different company in this clause, this page is the current one: CR Fence & Rail Inc is the registered entity. Earlier printings carry an out-of-date name.

Time and tools required

Time required

- Wood ground attachment — 20+ minutes
- Concrete ground attachment — 60+ minutes

Tools required

- An electric drill or hammer drill. An impact drill is preferred (although not required) for installing bolts for concrete steps, lag screws for wooden steps, or other ground attachments.
- Hex bit, bit extension and nut socket — all included in the kit
- The depth-measuring pencil included in the kit

Masonry tools and hardware (for concrete)

5/16" (8mm) Anchor Bolt

5/16" (8mm) Masonry Drill Bit — *SDS+ available upon request

— Diamond Core Drill Bit — for hard stone, *available upon request

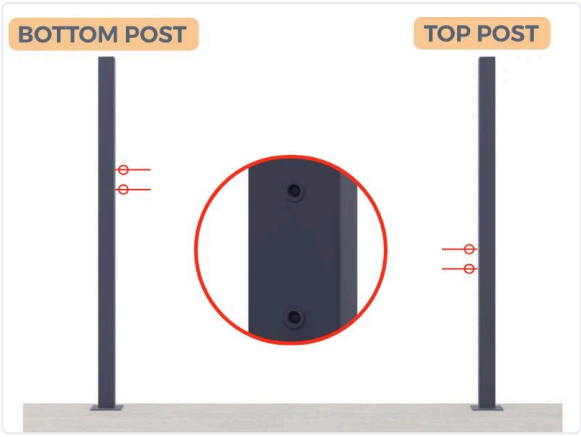
This will be a tight fit. In fact, the specification calls for the drill bit and anchors to be the same size. Some installers use a 3/8" drill bit to make the installation easier, and other installers wiggle the drill bit to bore the top of the hole slightly bigger. We are aware of the tight fit and we only recommend using our masonry drill bit without wiggling.

Part 1: Assemble your handrail

Read the safety section before you begin.

1.1 Identify the bottom post and the top post

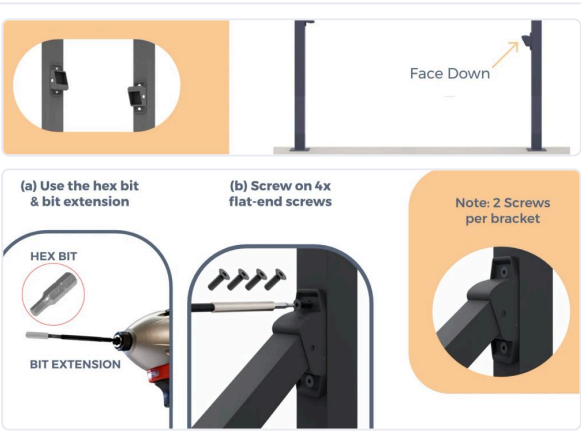
The holes on the BOTTOM post are higher compared to the holes on the TOP post. Make sure to position the posts correctly before you attach anything.



1.2 Attach the brackets to the posts

Use the SMALLER brackets on the posts. Note the direction and the height of the brackets: on the top post the bracket faces up, on the bottom post it faces down.

(a) Use the hex bit and bit extension. (b) Screw on 4x flat-end screws — two screws per bracket.



1.3 Attach the top rail (larger) brackets and the end caps

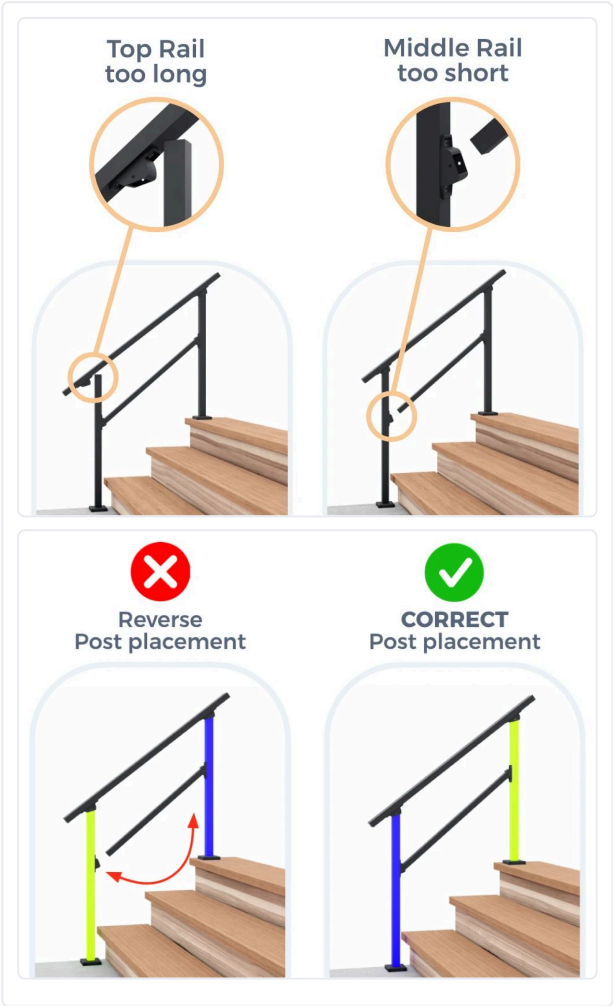
(a) Attach the larger brackets using 4x flat-end screws, two screws per bracket. (b) Insert the end caps.

> Both top rail brackets face the SAME direction.

1.4 Assemble the handrail loosely

The handrail stays unsecured until the end. Position it loosely first, so you can mark the holes for the post installation.

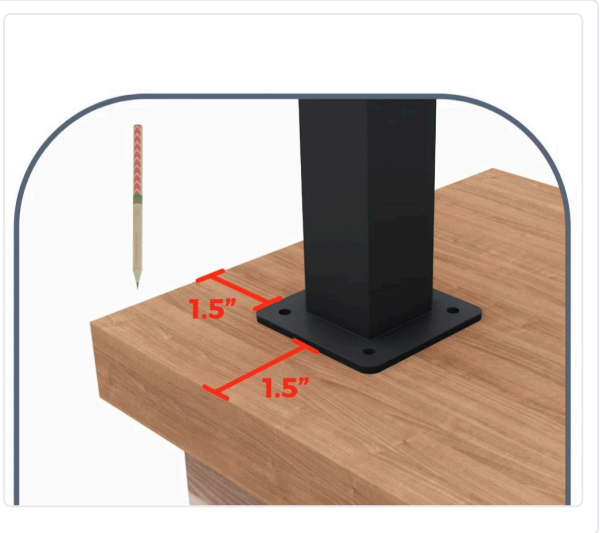
> **NOTICE! Common mistake — a reversed post.** If the top rail or the middle rail comes out too short or too long, you have reversed the posts. To fix it: (1) flip the bracket's direction, and (2) swap the posts — see step 1.1.



Part 2: Post to ground attachment

2.1 Position and mark the holes

The post should be at least 1.5" (4 cm) away from the edges, and the post baseplate should be parallel with the edges. Once it is properly aligned, mark the locations of the baseplate holes on the surface.



2.2 Drill the holes

FOR CONCRETE — use the larger drill bit (the masonry bit) and continue to step 2.3.

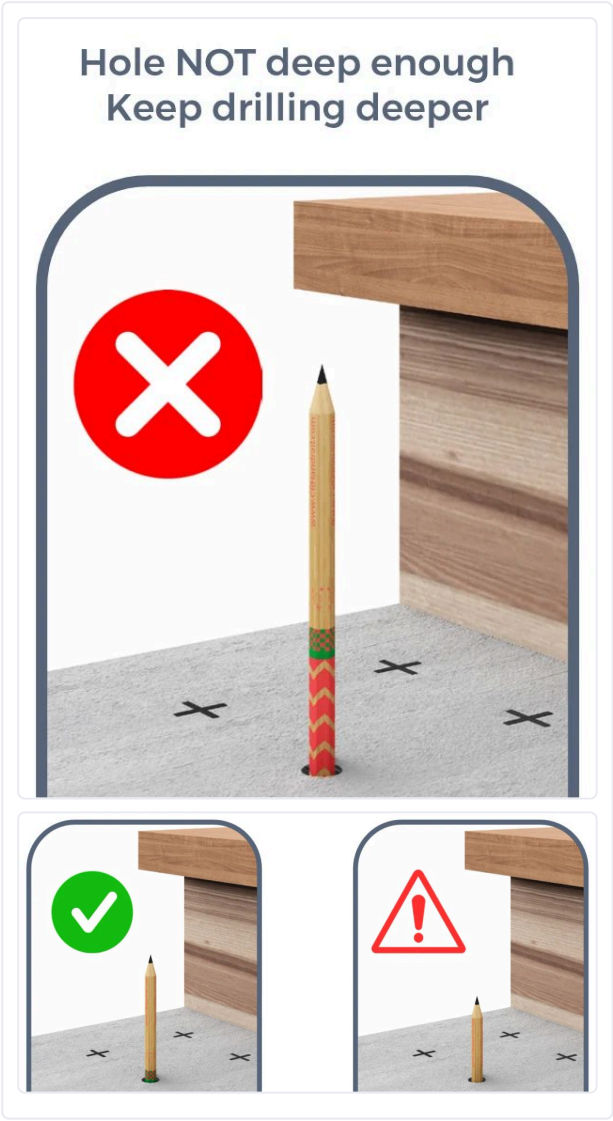
FOR WOOD — use the smaller drill bit (the wood pilot-hole bit) and go straight to step 2.5.

2.3 Ensure the correct depth (concrete only)

Use the CR pencil to measure the depth of the hole with the flat end of the pencil. This is only a rough measurement — it is there to confirm the hole is deep enough.

Hole NOT deep enough: keep drilling deeper. Hole TOO DEEP: be careful not to insert the anchor too deep. Between the two is the perfect depth.

> **NOTICE!** Holes must be deep enough or you will have a serious issue later.



2.4 Install the anchors (concrete only)

Once the holes are made and the depth is verified, hammer the anchors into the holes.

Periodically double-check: put the post onto the anchor and physically verify the washer and nut have only enough thread for the full height of the nut to screw on.

> Hammer the anchor with 2 washers and 2 nuts fitted, with a nut at the very tip, to prevent over-insertion.

2.5 Secure the post to the ground

Use the provided nut socket and bit extension. On wood you are driving lag screws; on concrete you are tightening nuts onto the wedge anchors.

FOR WOOD — (1) position the posts, along with the complete railing, over the pre-drilled holes. (2) Install a washer and lag screw, one by one. (3) When all are installed, double-check each of them again to ensure all are tightened. If your drill has a hammer or impact function, enable it.

FOR CONCRETE — (1) with all the nuts and washers removed, put the posts onto the anchor bolts, along with the rest of the rail. Install a washer and nut on each anchor bolt, one by one. (2) Hand-tighten a nut and washer over each anchor bolt. (3) Use the electric drill to tighten the nut — turn the hammer or impact function OFF.

> What if the post is not level? If the ground is not level, use the included extra washers to shim the baseplate.

Part 3: Secure your handrail

3.1 Secure all joints

Using the included self-drilling screws, with some force applied — be careful of your fingers as you hold the screws in place — drill the screws through the pre-made holes on all the brackets into the metal railing. This locks the metal in place.

> Pre-drilling a hole is NOT necessary. The self-drilling screw makes its own hole when force is applied. If you must, use a small drill bit to make a pilot hole.

3.2 Attach the post covers

For a seamless look, attach the post covers to hide the base plate and the hardware. Your installation is complete.

Connecting rails: top rail connectors

Top rail connectors join one CR rail kit to the next, turn a corner, or close a run against a wall. They are fittings used inside the installation above, not a separate job.

- **TRC-SFm / TRC-CFm** — straight fixed metal connector, for an in-line join.
- **TRC-SAp** — straight adjustable connector, where the two rails are not quite in line.
- **TRC-CAp / TRC-BAp** — corner and 180° adjustable connectors.
- **TRC-Wallv1** — L bracket, for terminating a rail into a wall.
- **TRC-EndM** — metal top rail end cap, to close an open rail end.

Fit the connector before you secure the joint: seat both rails fully into the connector, then drive the self-drilling screws through the pre-made holes. Use 2 screws on each end of a top rail connector, on the bottom side.

Watch the top rail connector video

10-year warranty

We have doubled our support from 5 years to 10, showing our commitment to you and the trust we have in our railings for outdoor steps.

To view our full warranty policy, visit www.fencerail.com/warranty.

Need help?

We are here to help you get it right. Text us a photo of the problem — it is the fastest way for us to see what you are looking at.

> **Call or text with photos:** (800) 420-0432
>
> **WhatsApp:** (775) 324-8877
>
> **Missing parts?** We will replace them free — www.fencerail.com/parts

We can help with

- Connecting multiple railings
- Technical drawings
- Complicated installations
- Installation error
- Missing parts

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