BIOSHIELDUV®

CR Cable Handrail Kit Installation Guide

MODELS COVERED **CHRK1** **CHRK2** **CHRK3** **CHRK4** **CHRK5** **CFRK6-36(D)**

⚠ **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. Cable railing also depends on correct tension. You and your installer make the final determination of the means and methods appropriate for your site.

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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.

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.
- Brackets are not included in the kit, and a screwdriver
- H4 hex bit, H5 hex bit, hex nut/bolt driver, drill bit extender — all included

What is in your kit

1 Wood pilot hole drill bit	1 Masonry drill bit
1 Ruler	1 H4 hex bit
1 H5 hex bit	1 Hex nut/bolt driver
1 Drill bit extender (for the hex bit and the nut holder)	1 Depth measuring pencil
8 Wedge anchors	8 Lag screws
10 Flat washers	2 Metal post covers
1 Lower post, 1 upper post, 1 top rail	2 Brackets, 2 end caps
4 Flat-end screws, 4 self-drilling screws	10 1/8" cable swage tensioners
10 Cable sections with terminals attached	20 End sleeves — comes only with the cable stairs handrail 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	

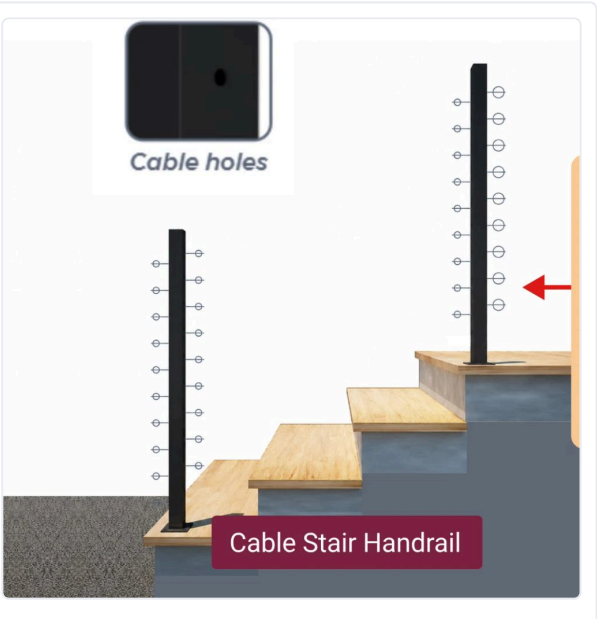
This will be a tight fit. In fact, the specification calls for the drill bit and anchors to be the same size. Some installers use a 3/8" drill bit to make the installation easier, and other installers wiggle the drill bit to bore the top of the hole slightly bigger. We are aware of the tight fit and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

Part 1: Assemble the handrail

This guide covers both the Cable Stair Handrail Kit and the Cable Horizontal Handrail Kit. The installation is the same for both — just follow the steps in order.

1.1 Determine the upper and the lower post

Your kit includes 2 posts labelled “Post A” and “Post B”. When positioning them, ensure the cable holes are facing in the correct direction.



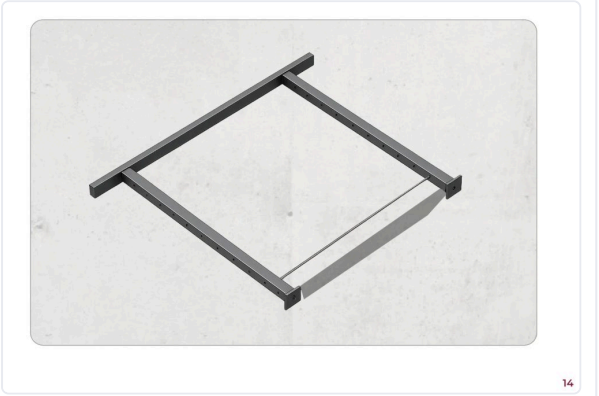
1.2 Assemble the top rail

Attach the brackets to the top rail using 4x flat-end screws, two screws per bracket, for secure fastening. Then attach the end caps.

> Make sure the hole is facing inwards.

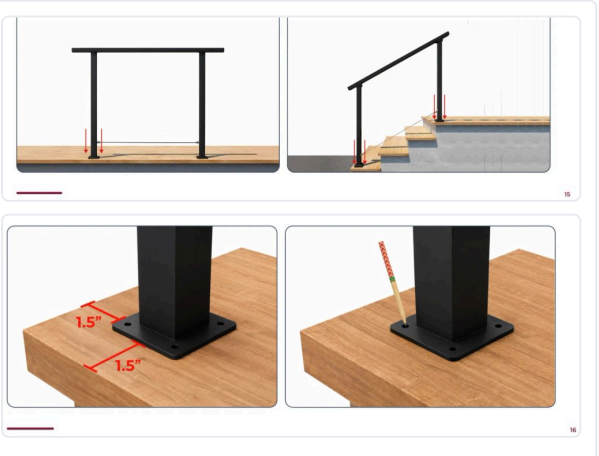
1.3 Assemble the handrail loosely, flat on the ground

Put at least the bottom wire through before bolting the post down. It will ensure you do not set the posts too wide — or you risk not having the bottom cable long enough.



1.4 Position and mark the holes

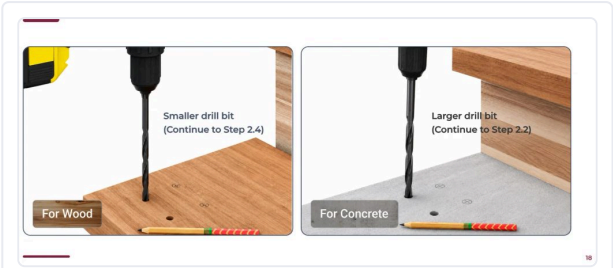
Position the handrail making sure that the baseplate is parallel to the edges. Ensure that the baseplate is at least 1.5" (4 cm) away from the edges. Once properly aligned, mark the locations of the baseplate holes on the surface.



Part 2: Post to ground attachment

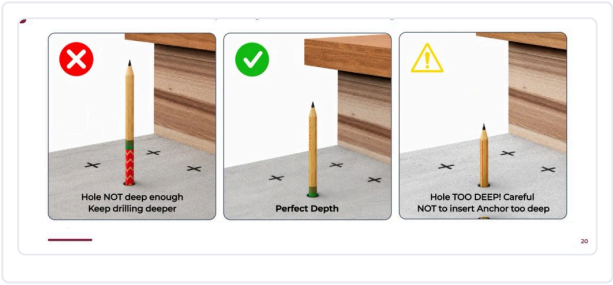
2.1 Drill the holes

FOR CONCRETE — use the larger drill bit and continue to step 2.2. FOR WOOD — use the smaller drill bit and continue to step 2.4.



2.2 Ensure the correct depth (concrete only)

Use the CR pencil to measure the depth of the hole with the flat end of the pencil. Ensure that the holes are deep enough to avoid encountering serious issues later on. Hole NOT deep enough: keep drilling deeper. Hole TOO DEEP: be careful not to insert the anchor too deep.



2.3 Install the anchors (concrete only)

Once the holes are drilled and the depth is verified, hammer the anchors into the holes. Then place the post on the anchor and ensure the nut has enough thread for secure tightening.

> To avoid pushing the anchor too deep, stack two washers and two nuts at the end of each anchor before hammering.

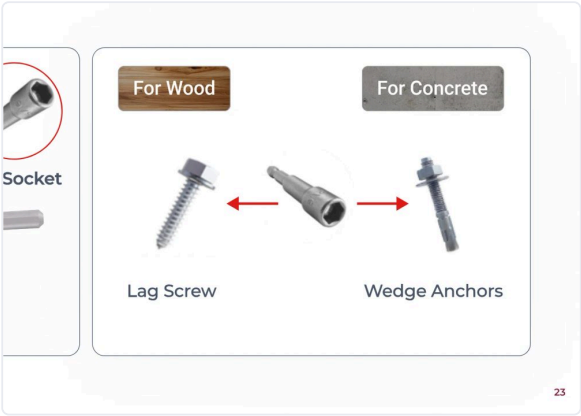
2.4 Secure the post to the ground

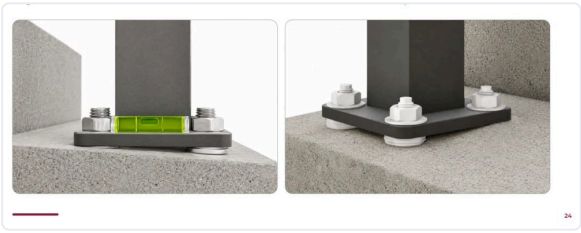
Use the provided drill bit extension and nut socket to fix the post to your surface.

FOR WOOD — align the posts above the pre-drilled holes. Secure each post by installing a washer and lag screw, one at a time. Once all posts are installed, double-check each to confirm they are firmly tightened. Turn on your drill's hammer or impact feature for better performance if it has one.

FOR CONCRETE — remove all nuts and washers, then place the posts on the anchor bolts. Attach a washer and nut to each post, one after the other, and tighten by hand on each anchor bolt. Use an electric drill to firmly tighten the nuts, with the hammer or impact setting OFF to prevent damage.

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

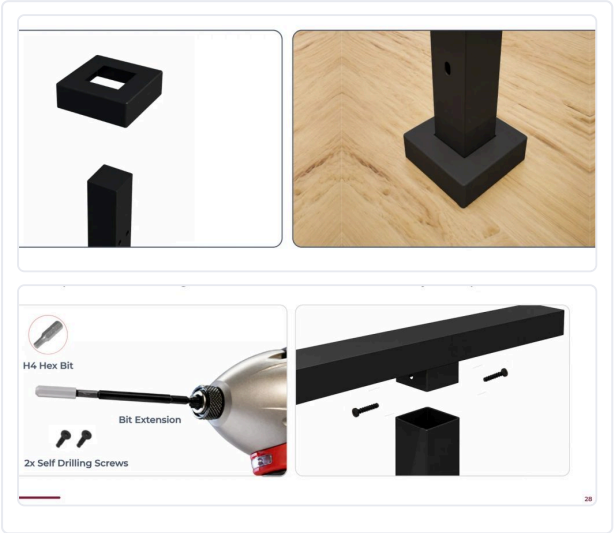




2.5 Put the post cap on, and attach the top rail

Insert the metal post cover into the post by sliding it in. Then use the provided self-drilling screws to attach the brackets securely to the posts — one self-drilling screw per bracket. Apply pressure as needed, taking care to protect your fingers while holding the screws in place.

> **NOTICE!** Make sure the handrail is firmly and securely assembled before moving forward with the installation of the cables. This ensures stability and safety throughout the installation process.

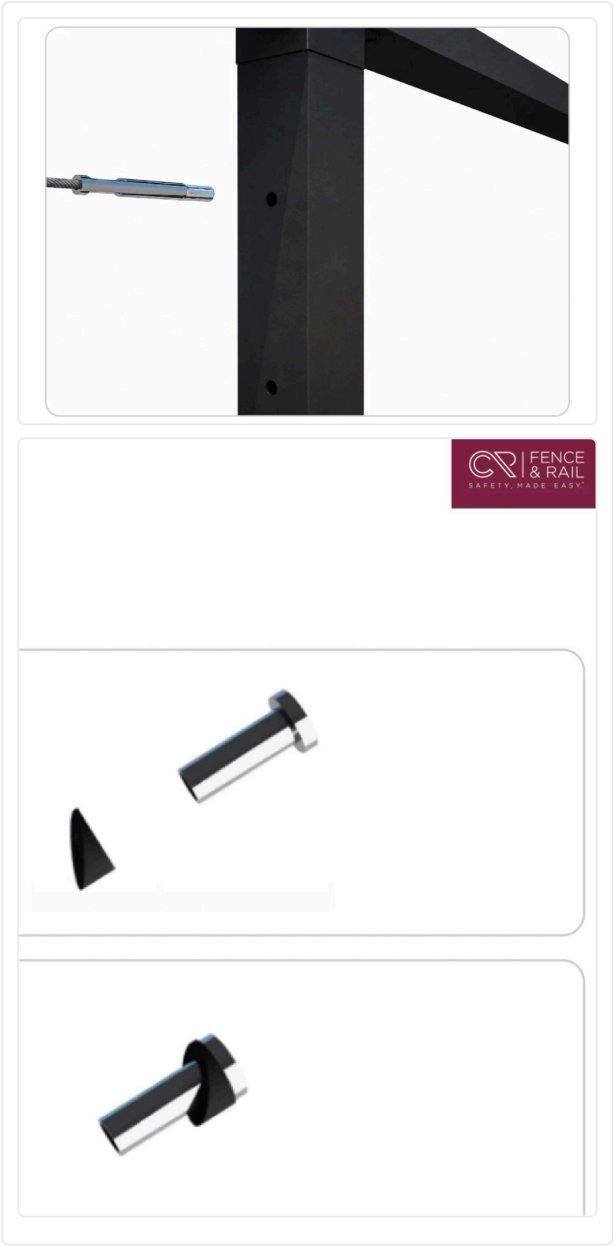


Part 3: Insert and tension the cable

The cable terminal end sits on Post A; the stud terminal end and the cable swage tensioner sit on Post B.

3.1 Insert the end sleeve (cable stair handrail only)

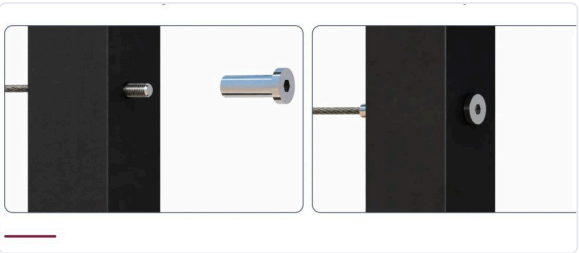
If you purchased the Cable Stair Handrail, insert the cable end sleeves onto the cable BEFORE inserting the cable through the post. Ensure the sleeves are correctly positioned on the cable terminal ends.



3.2 Insert the cable and connect the tensioner

Pass the cable with the stud terminal end through the holes on the post, starting from Post A / lower post and moving towards Post B / upper post.

Insert one cable end sleeve onto the cable swage tensioner before installation, then connect the cable swage tensioner onto the stud terminal to initially secure the cables.

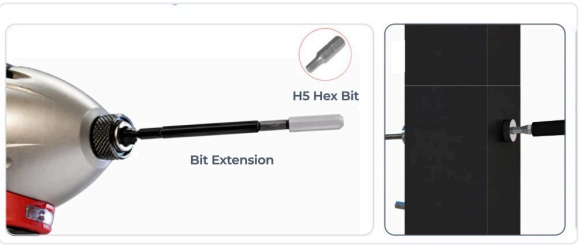


3.3 Start in the middle — tension cables 5 and 6 first

Do NOT tension cables in order from top to bottom. Begin with the two middle cables (cables 5 and 6, numbering from top to bottom). Work outward in both directions alternately until all 10 cables are initially set.

Tensioning order for a 10-cable run: cables 5 and 6 (middle pair); cable 4, then cable 7; cable 3, then cable 8; cable 2, then cable 9; cable 1 (top), then cable 10 (bottom).

Tighten the cable terminal using a hex bit and a bit extension, until there is no slack remaining.



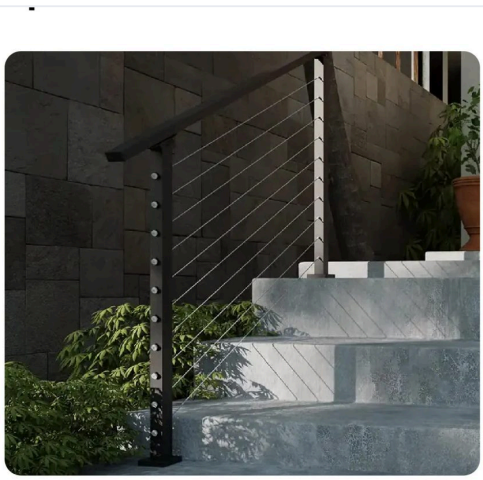
3.4 Complete the tensioning and equalize

Run 2 to 3 full passes through all cables using the same middle-out sequence from step 3.3. Each cable you tension in a later pass relaxes cables you tensioned earlier — this is normal. Continue making passes until all cables hold even tension and no further adjustment is needed.

After all passes, press firmly on each cable to verify even firmness across the run. Check post plumb again — both terminal posts should be vertical. If a post has moved, loosen the cables nearest to that post slightly and re-check.

> **NOTICE!** Post A is your fixed dead-end (cable terminal side) and Post B is your tensioning post (stud terminal / cable swage tensioner side). Post B carries the full cumulative inward pull from all 10 cables. Check its anchor bolts are tight after completing all passes.

> Follow-up check: cable settles with use. Return after the first few days of normal use and verify tension has not dropped significantly. A single follow-up adjustment pass is normal and expected.



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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