

# Installation Instructions

## Dynarail® Guardrail & Handrail



*High Performance Composite Solutions*



# Simplified Guardrail and Handrail Instructions



The **Dynarail® Modular Guardrail and Handrail System Installation Instructions** have been designed to combine the best in fiberglass reinforced plastic (FRP) railing with simplicity of installation. Fibergrate has made every attempt to provide clear and thorough instructions for installing these products. If you have any further questions, or need additional information, do not hesitate to contact Fibergrate at (800) 527-4043.

By following these simple instructions, you should find installation of your railing system quick and easy.

## Tools Required

- Drill**
- Bits**
  - 1/8" (for rivets)
  - 3/16" (for kickplate and handrail screws)
  - 7/16", 9/16" & 11/16" (for connection bolts)
- Level**
- Bonding (Epoxy) Kit(s)** - one for every 15 posts
- Rivet Gun**
- Wrenches**
  - 7/16" (2 each)
  - 9/16" (2 each)
- Hack Saw**
- 25' Tape Measure**
- Sealing Kit**
- Stir Sticks**
- Sandpaper (80 grit)**

**NOTE:** Cuts and drilled holes must be sealed to maintain corrosion protection.

## QUICK TIPS FOR INSTALLING GUARDRAIL



1. Mark location of top of rail onto adjacent mounting surface (recommended 34 inches above walking surface or leading edge of stair tread).
2. Layout rail and attach rail splices and turns (see Section III - Splices & Connections for details).
3. Attach rail endcaps and/or end-connectors at the required locations (see Section III - Splices & Connections for details).
4. Attach brackets to the mounting surface while holding rail in place.
5. Attach brackets to rail with screws.

## IMPORTANT

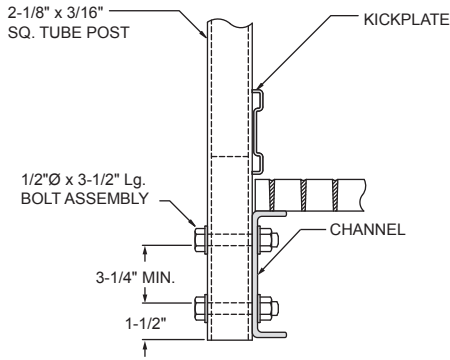
It is the installer's responsibility to carefully follow fabrication and installation plans and instructions to ensure design performance characteristics of the Dynarail® guardrail system. The installer could be liable for claims that result from improper installation.

# Section I - Post Installation Methods

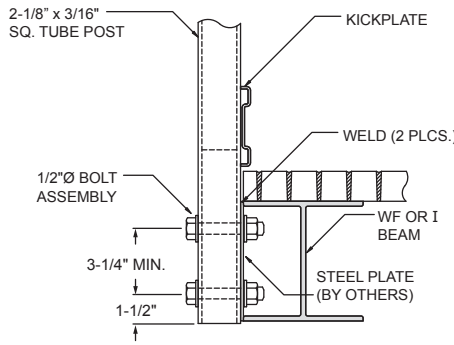
For installation conditions not shown, contact Fibergate.

All details are for posts spaced 6' max on centers to meet a F.O.S. of 2.0 under OSHA and IBC loads, unless noted otherwise.

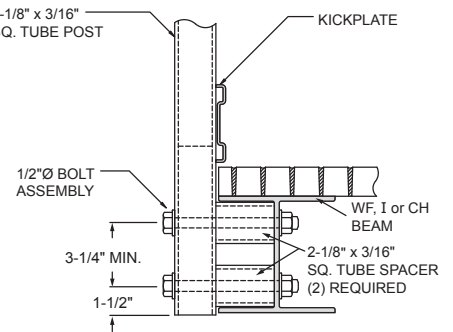
**DRAWING A - POST TO FRP OR STEEL CHANNEL**



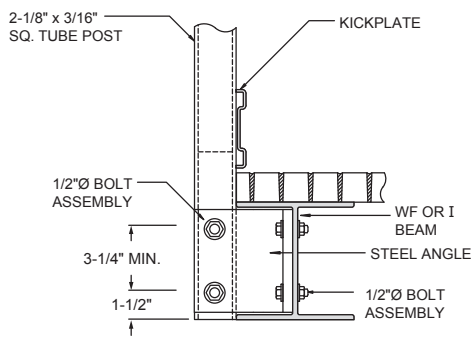
**DRAWING B - POST TO STEEL PLATE ON STEEL BEAM**



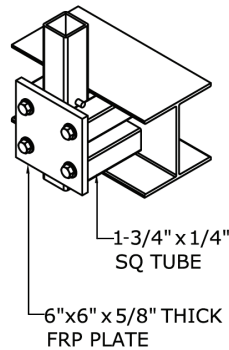
**DRAWING C - POST TO FRP OR STEEL BEAM OR CHANNEL WITH FRP SPACERS**



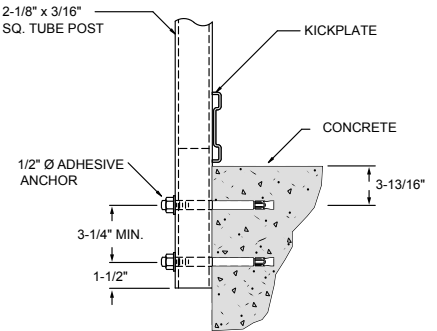
**DRAWING D - POST TO STEEL ANGLE ON FRP OR STEEL BEAM**



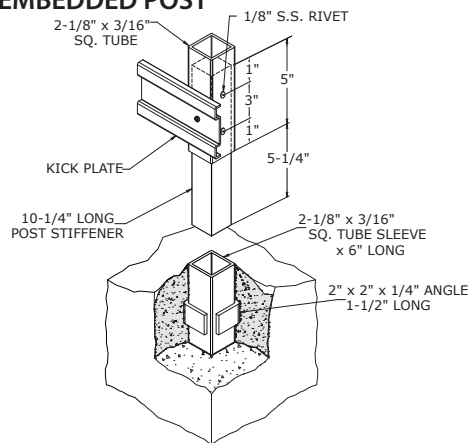
**DRAWING E - REMOVABLE POST TO FRP OR STEEL BEAM**



**DRAWING F - SIDE-MOUNTED POST**

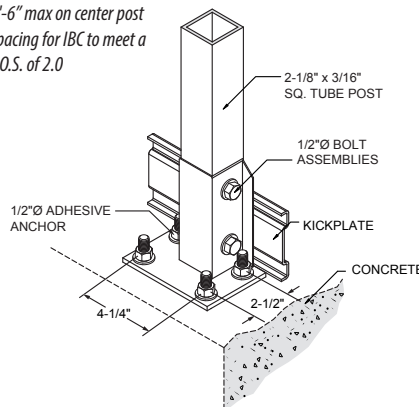


**DRAWING G - EMBEDDED POST**



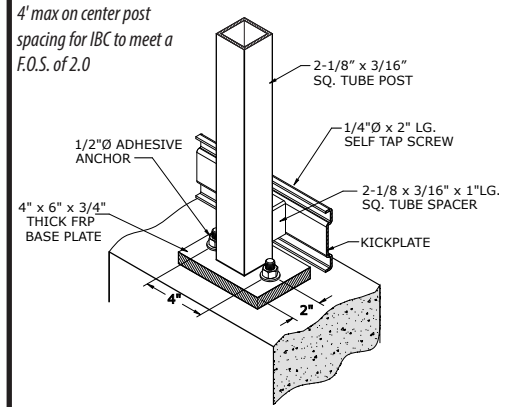
**DRAWING H - TOP MOUNT STAINLESS STEEL STANCHION BASE**

5'-6" max on center post spacing for IBC to meet a F.O.S. of 2.0



**DRAWING I - TOP MOUNT FRP STANCHION BASE**

4' max on center post spacing for IBC to meet a F.O.S. of 2.0



**MAX PULLOUT FORCE ON EACH CONCRETE ANCHOR BOLT**

	Drawing F	Drawing H	Drawing I
OSHA (200 lb)	2129 lbf	1292 lbf	2100 lbf
IBC (50 lb/ft)	3193 lbf	1777 lbf	2100 lbf

# Section II - Rail Installation

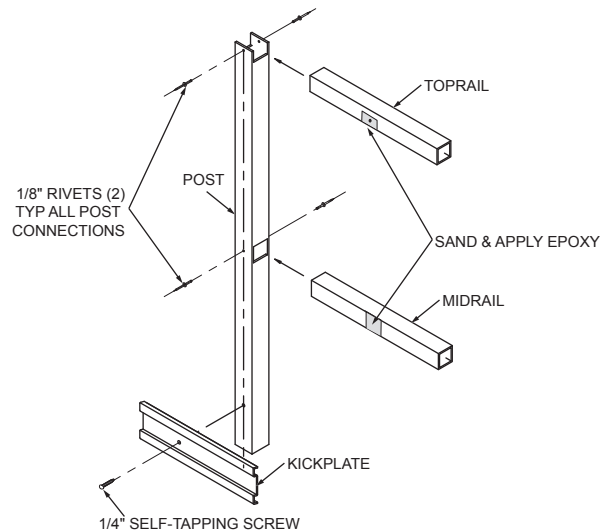
## INSTALLING HORIZONTAL RAILS TO POSTS

1. Cut rails and kickplate to length.
2. Use level to make posts vertical and tighten attachment bolts.
3. Dry fit toprail into tops of posts and adjust to proper location. Mark all post/rail intersections on sides of toprail.
4. Slide toprail to the side enough to sand off glossy surfaces of marked post/rail intersections using an 80 grit sandpaper.
5. Apply properly mixed epoxy to sanded surfaces of toprail and reinstall toprail into post tops.
6. Drill a hole using a 1/8" bit through the center of the toprail/post intersections. Install 2 rivets (one on each side) at all posts to secure the toprail while epoxy cures.
7. Dry fit midrail into square holes of posts and slide into position. Mark all rail/post intersections on all sides of midrail.
8. Slide rail to side and sand off glossy surfaces of marked post/rail intersections using an 80 grit sandpaper.
9. Apply epoxy to the sanded surfaces of midrail and return the rail to its proper location.
10. Drill a hole using a 1/8" bit through the center of the midrail/post intersections. Install 2 rivets (one on each side) at all posts to secure the midrail while epoxy cures.
11. Align bottom of kickplate 1/4" above walking surface.
12. Drill 3/16" hole through center of kickplate at posts.
13. Install kickplate to posts using 1/4" self-tapping screws. Be careful not to overtorque and strip the screws.

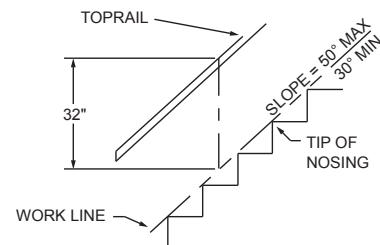
## INSTALLING INCLINED RAILS TO POSTS

1. Cut rails to length.
2. Slide midrail through inclined posts.
3. Mount post(s) to stairway stringer with toprail 32" high as measured from the work line (**see Drawing K**).
4. Use level to make posts vertical and tighten attachment bolts.
5. Slide toprail down into tops of posts. Rails should make contact with cutout in posts as shown in **Drawing L**.
6. With rails in proper location, mark area in contact with posts.
7. Slide rails to one side and sand contact areas with 80 grit sandpaper to remove glossy surface on toprail and midrail.
8. Apply epoxy to midrail and toprail.
9. Replace toprail onto post tops and slide midrail through posts to proper location.
10. Tighten post attachment bolts.
11. Drill hole using 1/8" drill bit through posts at toprail and midrail.
12. Install 2 rivets (supplied) to each rail/post intersection, apply epoxy to tip of each rivet.
13. Mark area of posts covered by gap cover plates and sand.
14. Apply epoxy to sanded area of posts and inside of gap cover plates.
15. Drill one hole using 1/8" drill bit through the gap cover plate and post, then insert and tighten the rivet to secure the cover plate to the post until the epoxy cures.

## DRAWING J - HORIZONTAL RAIL INSTALLATION

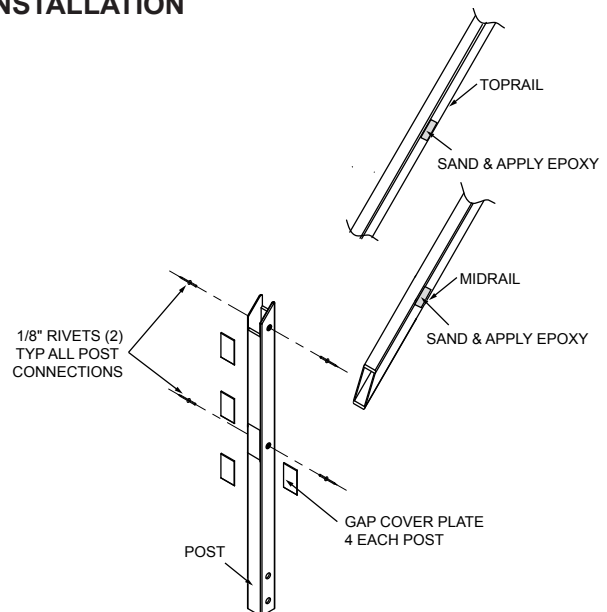


## DRAWING K - STAIRWAY WORK LINE (OSHA)



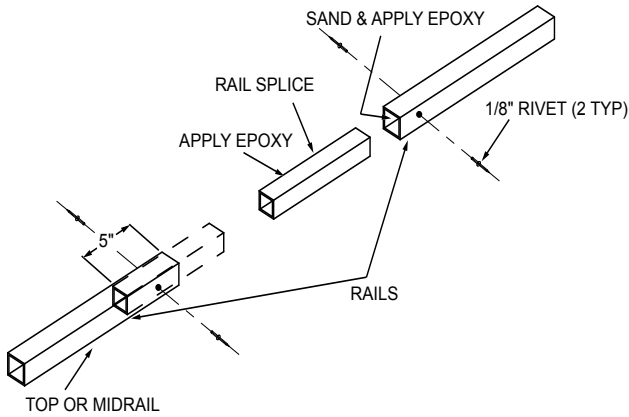
Check Codes for Specific Requirements

## DRAWING L - INCLINED RAIL INSTALLATION

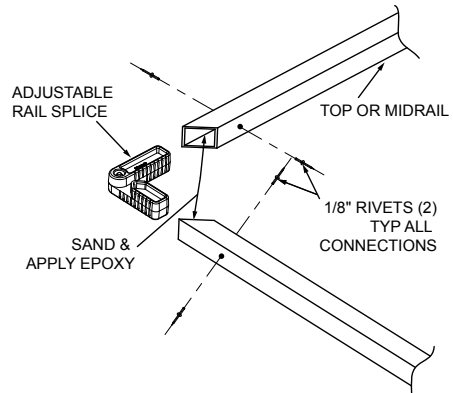


# Section III - Splices and Connections

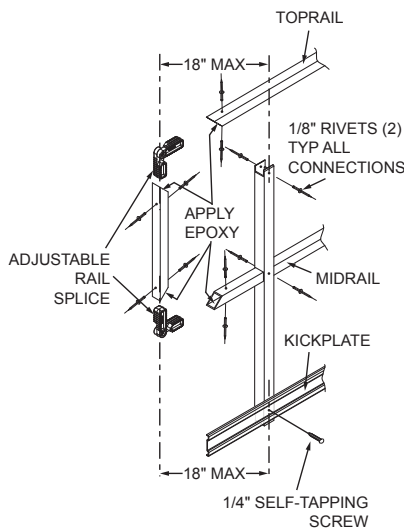
**DRAWING M - RAIL SPLICE**



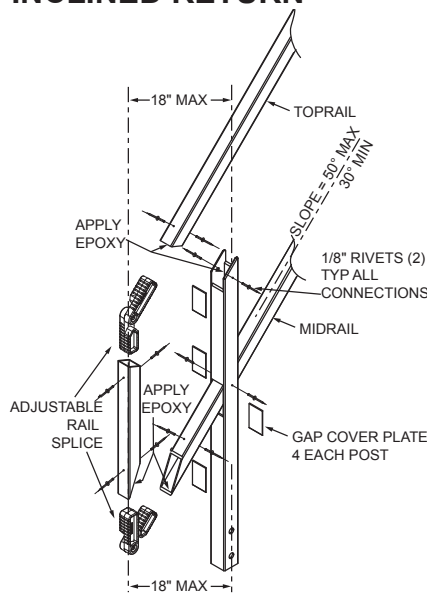
**DRAWING N - ADJUSTABLE RETURN**



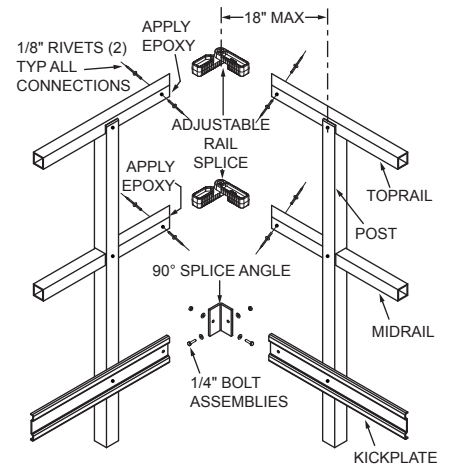
**DRAWING O - HORIZONTAL RETURN**



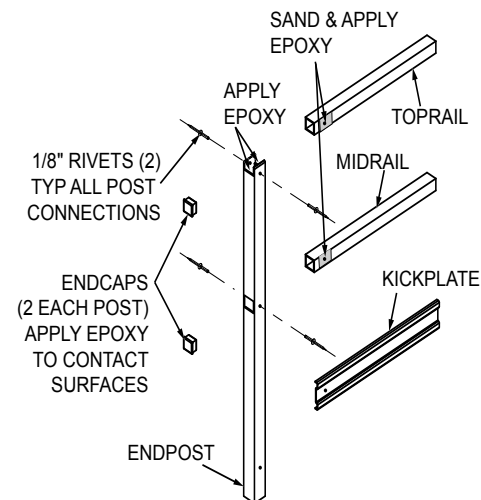
**DRAWING P - INCLINED RETURN**



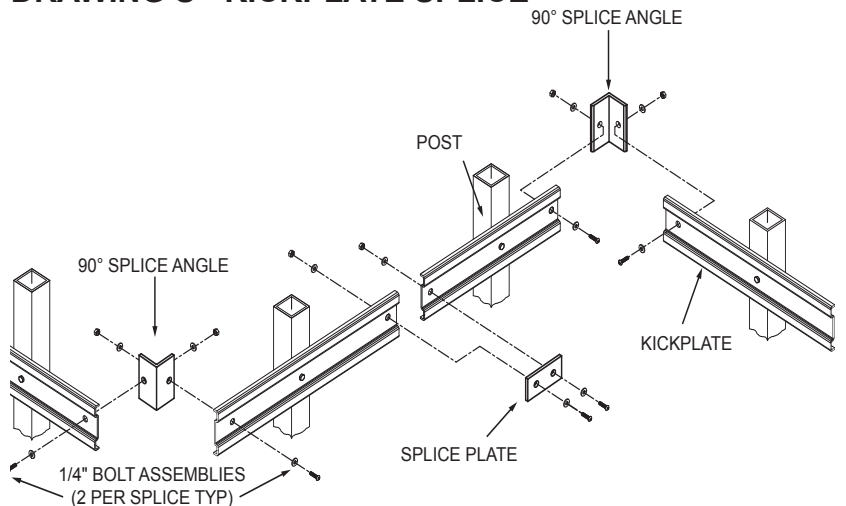
**DRAWING Q - 90° TURN**



**DRAWING R - ENDPPOST**



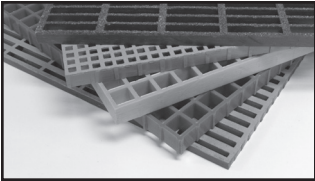
**DRAWING S - KICKPLATE SPLICE**





# Fibergrate Products & Services

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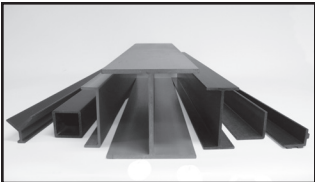
## Fibergrate® Molded Grating

Fibergrate molded gratings are designed to provide the ultimate in reliable performance, even in the most demanding conditions. Fibergrate offers the widest selection in the market with multiple resins and more than twenty grating configurations available in many panel sizes and surfaces.



## Safe-T-Span® Pultruded Industrial and Pedestrian Gratings

Combining corrosion resistance, long-life and low maintenance, Safe-T-Span® provides unidirectional strength for industrial and pedestrian pultruded grating applications.



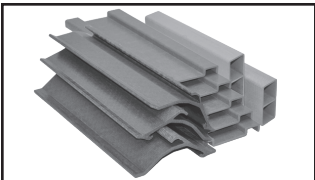
## Dynaform® Structural Shapes

Fibergrate offers a wide range of standard Dynaform® pultruded structural profiles for industrial and commercial use, including I-beams, wide flange beams, round and square tubes, bars, rods, channels, leg angles and plate.



## Dynarail® Guardrail, Handrail & Ladder Systems

Easily assembled from durable components or engineered and prefabricated to your specifications, Dynarail® guardrail, handrail and safety ladder systems meet or exceed OSHA and strict building code requirements for safety and design.



## Custom Composite Solutions

Combining Fibergrate's design, manufacturing and fabrication services allows Fibergrate to offer custom composite solutions to meet our client's specific requirements. Either through unique pultruded profiles or custom open molding, Fibergrate can help bring your vision to reality.



## Design & Fabrication Services

Combining engineering expertise with an understanding of fiberglass applications, Fibergrate provides turnkey design and fabrication of fiberglass structures, including platforms, catwalks, stairways, railings and equipment support structures.



## Worldwide Sales & Distribution Network

Whether a customer requires a platform in a mine in South Africa to grating on an oil rig in the North Sea, or walkways in a Wisconsin cheese plant to handrails at a water treatment facility in Brazil; Fibergrate has sales and service locations throughout the world to meet the needs and exceed the expectations of any customer.

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