

BALLASTED COMPONENT GUARDRAIL

Standard and Contoured Post Configurations

INSTALLATION AND ASSEMBLY



Install in accordance with this manual and any project-specific documents provided.

IMPORTANT

This manual shall be retained by the building owner for the service life of the system.
Installation shall be performed by qualified personnel only.



Table of Contents

1. Installation Scope.....3

2. System Overview3

3. Safety Requirements 4

4. Before You Start..... 6

5. Tools and Materials7

6. Critical Installation Rules..... 8

7. Installation Instructions 11

8. Inspection Checklist.....14

9. Maintenance and Ongoing Inspection.....15

Appendix A – Definitions16

Appendix B – Installer Quick Guide..... 17

1. INSTALLATION SCOPE

- This manual provides installation and assembly instructions for the SafePro Ballasted Component Guardrail System.
- Some installations are completed using only this manual and the product components supplied with the order. Other installations may require project-specific drawings, layouts, specifications, or engineering documents.
- Comply with all applicable jurisdictional requirements, approved project-specific documents, and this manual. Where requirements differ, use the most restrictive requirement. Do not deviate from this manual unless the deviation is specifically approved by the manufacturer or included in an approved compliant design. If requirements conflict or cannot be reconciled, stop work and request clarification.

2. SYSTEM OVERVIEW

2.1. WHAT THIS SYSTEM IS

This guardrail system provides a non-penetrating, free-standing barrier at roof edges and other elevated walking/working surfaces. The system is held in place by weighted bases and proper configuration—not by attachment to the building. Install all bases, posts, rails, fittings, and returns as shown in this manual before using the system.

2.2. APPROVED CONFIGURATIONS

- This manual covers two guardrail post variants:
 - Standard vertical posts
 - Contoured posts
- Use the same installation steps for both post variants unless this manual states otherwise. Do not change layout, spacing, returns, outriggers, or components without approval by the manufacturer or an approved compliant design.
- Outrigger requirements are determined by project-specific layout or engineering documents and are not established by this manual.

2.3. SYSTEM LIMITATIONS

- This system is for passive edge protection only. Refer to 3.5. Prohibited Uses
- Do not use the system before installation is complete and all bases, posts, rails, fittings, returns, and required outriggers are installed, aligned, tightened, and inspected.
- Verify required spacing, returns, and outrigger arrangement before installation. Do not assume one arrangement is acceptable for all sites, roof heights, wind exposures, or jurisdictions.
- Do not relocate the system to a different site, roof area, or building height without review.
- System stability depends on correct base placement, surface conditions, required returns, required outriggers, component condition, and final tightening.

- If field conditions conflict with this manual or any project-specific documents provided, stop work and request review before installation, relocation, or continued use.
- Environmental exposure may restrict product use or require increased inspection and maintenance. See Section 9.2. Corrosive Environments.

2.4. WIND COMPLIANCE

Guardrail configurations are designed to support compliance with ASCE 7 wind design requirements. Outriggers may be required to achieve project-specific performance requirements and are determined by project-specific layout or engineering documents, not by this manual. SafePro can provide project-specific layouts and configuration guidance where required. Refer to the Technical Data Sheet and project-specific documents for additional information.

3. SAFETY REQUIREMENTS

3.1. GENERAL SAFETY REQUIREMENTS

- Read the full manual before installation.
- Install only with qualified personnel.
- Follow applicable site safety requirements, employer procedures, and building-owner requirements.
- Use PPE appropriate for the task and site conditions.
- Stop work if conditions create a hazard to personnel or system stability.

3.2. LEADING EDGE AND FALL HAZARD CONTROLS

- Treat roof edges and open sides as unprotected until installation is complete.
- Do not rely on partially assembled guardrail components for fall protection.
- Use fall protection required by applicable regulations and site requirements.
- A guardrail-protected area does not eliminate all fall hazards associated with accessing that area. Employees may be exposed to roof-edge, ladder, hatch, climbing, or other fall hazards while traveling to and from the protected area or while working outside the guarded area. Evaluate access routes and work activities separately and implement required fall protection measures before accessing the guarded area.



WARNING *Fall hazard. Treat the leading edge as unprotected. Fall from height could result in serious injury or death. Do not rely on the guardrail system until it is fully installed, tightened, and inspected. Use required active fall protection during installation when working near the leading edge.*

3.3. MATERIAL HANDLING

- Use proper lifting techniques.
- Use team handling when the size, weight, wind exposure, or configuration of a component prevents one person from maintaining safe control.

- Keep hands clear of pinch points.
- Do not drag components across the roofing surface.
- Plan the transport and lifting route before moving components toward the unprotected edge.
- Do not install when wind, visibility, or surface conditions prevent safe control of posts, rails, bases, tools, or other components.
- Do not leave loose or partially assembled components unsecured.
- Secure loose components if work is suspended.

Note: Ballasted base plates weigh approximately 85 lb and may require team lifting.

CAUTION

Lifting hazard. Injury may result from improper handling of heavy components. Use team lifting or mechanical assistance when handling ballasted base plates and other heavy components.

3.4. ELECTRICAL HAZARDS

- Identify overhead or nearby energized conductors before installation.
- Maintain required clearance of 10 ft between energized conductors and all personnel, rails, posts, tools, and equipment.
- If the clearance requirements cannot be determined or maintained, stop work until the hazard is resolved.

WARNING

Electrical hazard. Contact with, or close approach to, energized conductors could result in death or serious injury. Identify electrical hazards before work begins and maintain the required clearance between energized conductors and all personnel, rails, posts, tools, and equipment.

3.5. PROHIBITED USES

- This guardrail is not an anchorage and shall not be used for, fall arrest system, travel restraint, positioning, suspension, rope access, rescue or any other or tie-off application.
- Do not attach lifelines, lanyards, ropes, cables, equipment, or other loads to the system.
- Do not climb over, under, or through the guardrail system. Establish and use designated access points where personnel must enter or exit the protected area.

WARNING

Fall hazard. Death or serious injury may result if fall protection equipment, dynamic loads, or other applied loads are attached to or bear on this system. Do not tie off to the guardrail or allow lifelines, lanyards, ropes, cables, equipment, or other loads to attach to or bear on the guardrail.

3.6. MODIFICATION AND SUBSTITUTION

Use only manufacturer-approved components. Do not modify, alter, relocate, repair, or substitute components without written approval from SafePro. Unauthorized modifications or substitutions may void warranty coverage. Refer to the SafePro Limited Warranty.

3.7. STOP WORK CONDITIONS

Stop work if:

- Required components are missing or damaged.
- Required safety controls cannot be maintained.
- The required configuration cannot be achieved.
- Conditions conflict with this manual, project-specific documents, or applicable requirements.

4. BEFORE YOU START

4.1. SITE READINESS

- Confirm the installation surface is flat or does not exceed the maximum allowable slope.

Maximum surface slope: 1 in per 12 in (1:12)

- Ensure the surface is stable, continuous, and suitable for base placement
- Remove loose gravel, debris, snow, ice, standing water, or foreign material
- Verify bases can sit flat and fully bear on the surface.
- Confirm guardrail placement will not obstruct drainage paths, scuppers, overflow drains, or required access



WARNING *Tip-over hazard. Death or serious injury may result if the system is installed on an unstable or unsuitable surface. Do not begin installation unless the surface is stable, continuous, and suitable for base placement.*

4.2. COORDINATION CHECKS

- Coordinate installation with the building owner or designated representative
- Coordinate with roofing contractor or manufacturer as required
- Resolve conflicts with existing conditions before installation



NOTICE *Coordinate with the building owner, roofing contractor, or roofing manufacturer as required to avoid voiding existing roofing warranties.*

5. TOOLS AND MATERIALS

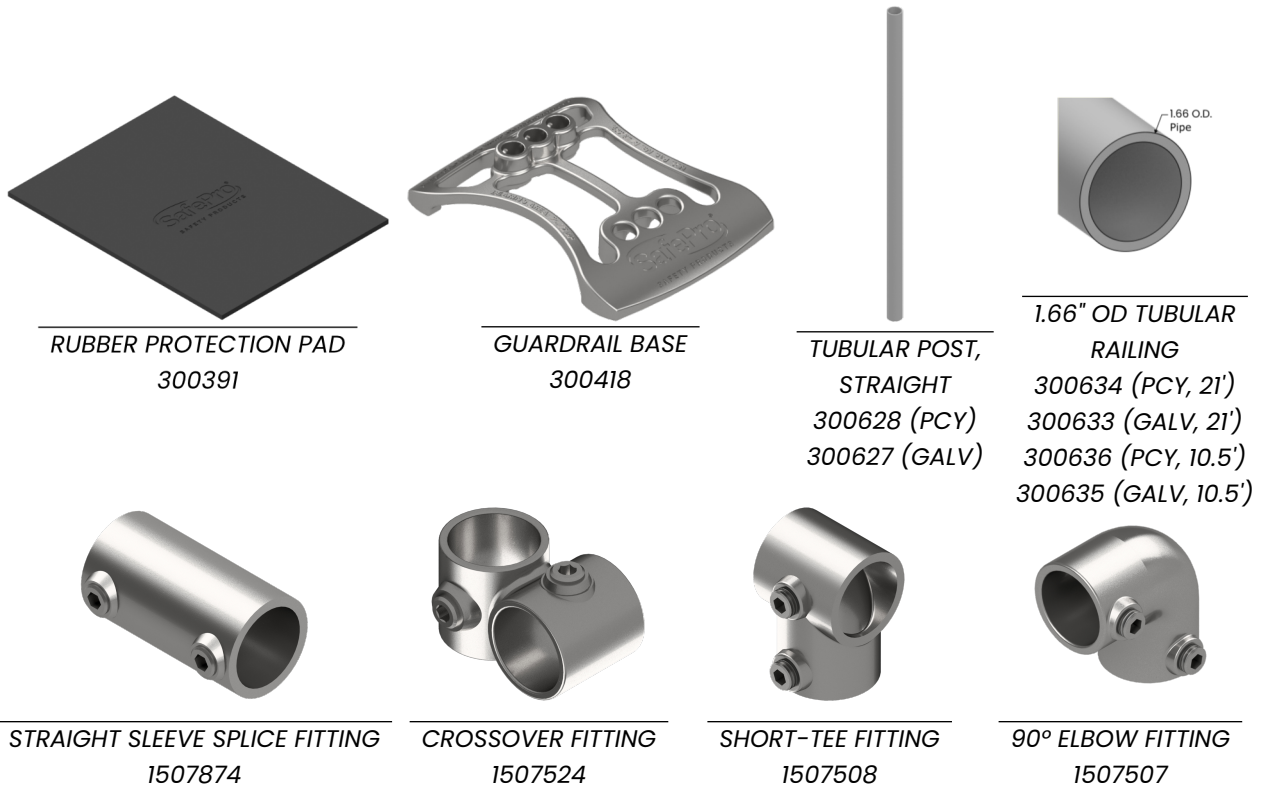
5.1. INSTALLER PROVIDED TOOLS

- 1/4 in and 3/8 in hex keys
- Torque wrench or torque driver capable of 29 ft-lb
- 1/4 in and 3/8 in hex bits or hex sockets
- Steel tube cutting tool suitable for 1-1/4 in Schedule 40 pipe
- Deburring tool suitable for steel tube

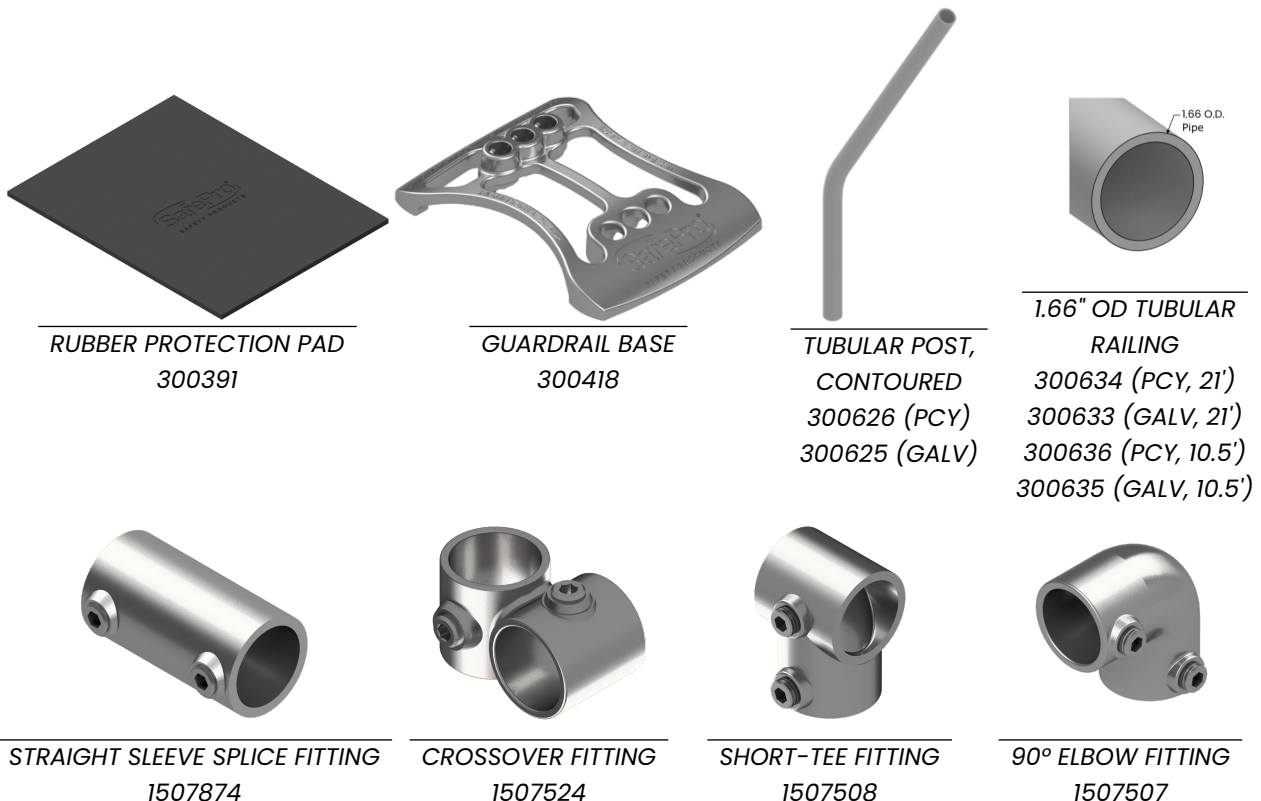
5.2. RECOMMENDED TOOLS

- Cordless impact driver or drill
- Powered steel tube cutting tool (portable band saw or abrasive chop saw suitable for steel tube)

5.3. ILLUSTRATED PARTS LIST, STRAIGHT POST



5.4. ILLUSTRATED PARTS LIST, CONTOURED POST

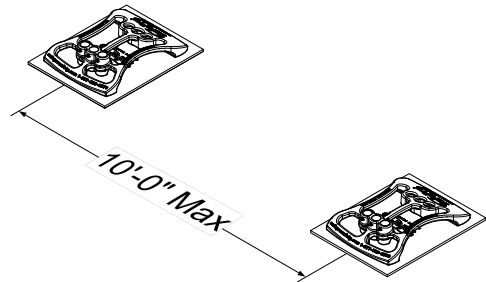


6. CRITICAL INSTALLATION RULES

These rules apply throughout the installation. Do not begin final tightening or place the system in service until all critical installation rules are satisfied.

6.1. POST SPACING

- 6.1.1. Do not space posts more than 10 ft on center under any condition
- 6.1.2. Review project documents and applicable jurisdictional requirements for spacing limits.
- 6.1.3. Measure spacing center-to-center between posts



Adjust base locations to meet the most restrictive spacing requirement across the run. Maximum allowable spacing may be reduced by jurisdictional requirements, project-specific criteria, or application-specific conditions.

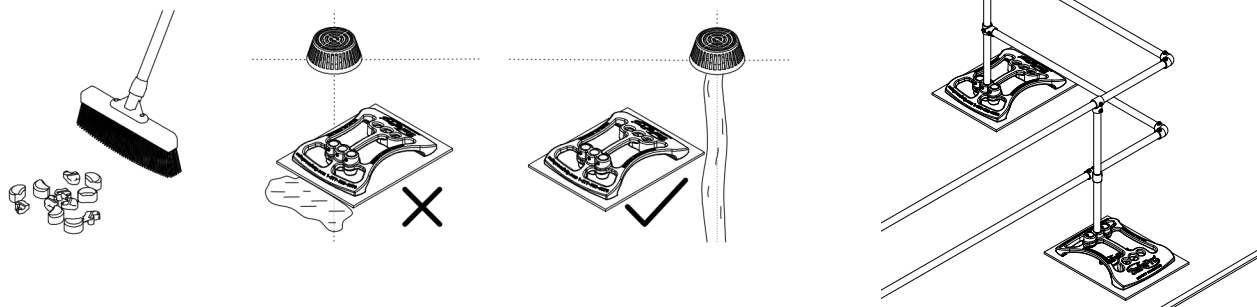
Absolute maximum: 10 ft on center

Project maximum: As shown on project documents

6.2. BASE PLACEMENT

- 6.2.1. Place bases only where they sit flat and fully supported.
- 6.2.2. Clean the base locations before placement. Remove loose gravel, debris, snow, ice, standing water, or other material.
- 6.2.3. Do not install bases on surfaces where they may slide or shift unless approved by SafePro. Examples include metal, trowel-finished concrete, and loose gravel.
- 6.2.4. Verify the layout does not obstruct drainage, scuppers, overflow drains, or required access.
- 6.2.5. Orient each base with receivers inboard and the base toe toward the leading edge.
- 6.2.6. Do not use an alternative base orientation unless shown on project-specific documents or approved by SafePro

Receiver orientation: Install guardrail posts in the center receiver where practical. Outside receivers may also be used where required by the configuration. The center receiver accommodates guardrail posts up to 1.90 in OD.



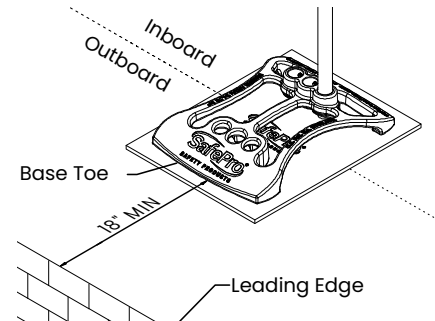
6.3. EDGE SETBACK

- 6.3.1. Maintain required setback from leading edge

Verify the layout does not obstruct drainage.

Minimum setback from leading edge to nearest edge of base: **18 in**

Applies only when no curb (≥ 3 in) or parapet is present



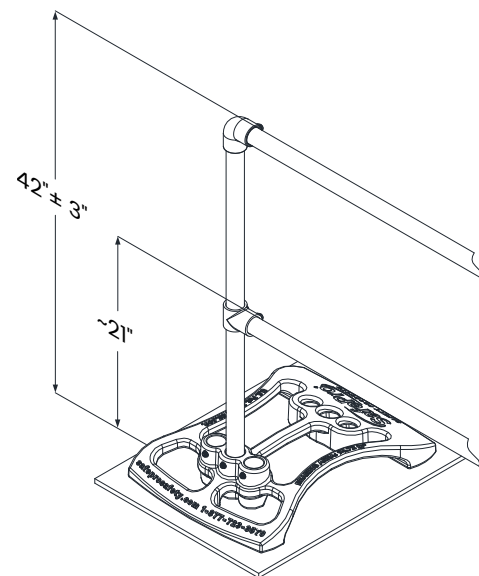
6.4. RAIL HEIGHTS

- 6.4.1. Set top rail to 42 in height (as governed by SafePro Post and Base geometry)
- 6.4.2. Set midrail to approximately 21 in height
- 6.4.3. Measure from walking-working surface to top of rail

Set heights during final alignment

Maintain heights above working surface across entire run

Top rail height: **42 in $\pm$ 3 in**



6.5. RETURNS

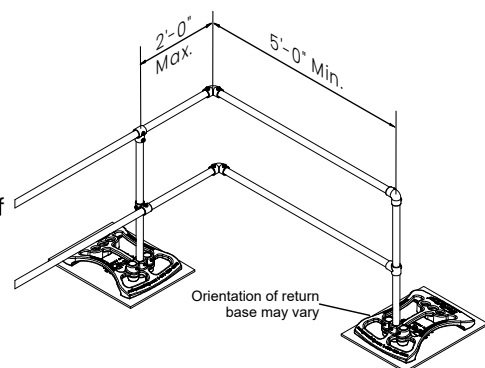
- 6.5.1. Install returns at each end of every guardrail run
- 6.5.2. Set return at 90°
- 6.5.3. Measure from centerline of end post to centerline of return base

Install returns before final tightening

Returns are not required where the guardrail system forms a complete, uninterrupted circuit and all run ends are eliminated.

Minimum return length: 5 ft

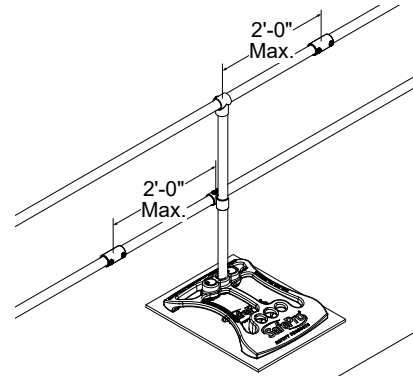
Inside corner of return must be within 2 ft of nearest continuous-run post



6.6. RAIL SPLICING

- 6.6.1. Install splice fittings as needed
- 6.6.2. Do not install splices mid-span
- 6.6.3. Stagger top rail and midrail splices when able

Splice locations within 2 ft of a post



NOTICE

Starting top rails and midrails with the same full-length segment can align splice fittings at the same post. Aligned splices concentrate joints and may not satisfy the required staggered splice condition. Trim the first top rail or midrail segment as needed to offset splice locations before continuing the run.

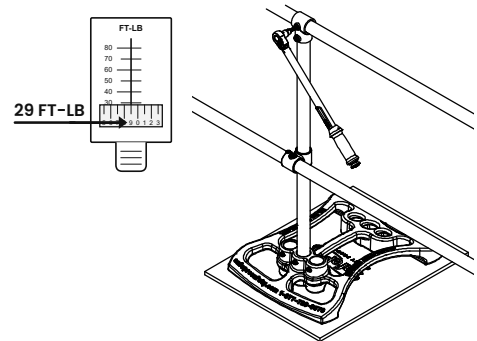
6.7. FASTENER TIGHTENING

- 6.7.1. After final alignment, tighten all set screws to 29 ft-lb
- 6.7.2. Recheck each set screw after initial tightening

Do not fully tighten until rails are aligned and heights are set

Do not overtighten or deform components

Set screw torque: 29 ft-lb



7. INSTALLATION INSTRUCTIONS

7.1. PLACE BASES

- 7.1.1. Place protection pads and bases at the starting point of the guardrail run
- 7.1.2. Continue placing bases along the intended guardrail path
- 7.1.3. Position bases for returns and required outriggers. Adjust base locations as needed to meet spacing, setback, drainage, layout, and orientation requirements.



Bases must sit flat and fully supported before continuing

Do not block drainage with bases

Verify each base is oriented correctly before inserting posts

Reference Sections: 6.1. Post Spacing, 6.2. Base Placement, 6.3. Edge Setback

⚠️ WARNING

Tip-over hazard. Death or serious injury may result if the system is installed on an unstable or unsuitable surface. Do not begin installation unless the surface is stable, continuous, and suitable for base placement.

NOTICE

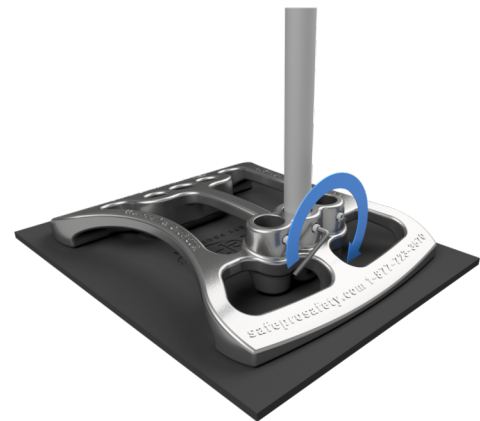
Complete the system layout before installing posts and rails. Unplanned base spacing may make the assembled system difficult to realign. Confirm base locations, returns, and required outriggers before proceeding with assembly.

7.2. INSTALL POSTS

- 7.2.1. Insert post into base receiver
- 7.2.2. Set post vertical and plumb
- 7.2.3. Lightly tighten base set screw

Post must be fully seated before tightening

Final torque occurs after alignment



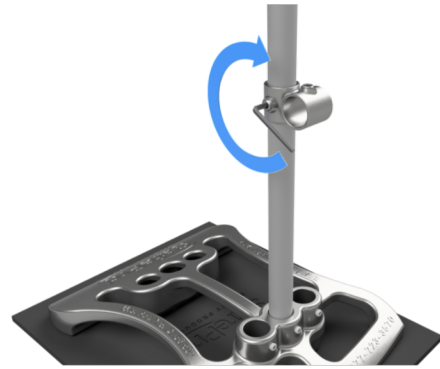
7.3. INSTALL MIDRAIL FITTINGS

- 7.3.1. Slide crossover fitting onto post
- 7.3.2. Position open end of fitting along guardrail direction
- 7.3.3. Set fitting to midrail height
- 7.3.4. Lightly tighten set screw

Leave fitting adjustable for alignment

Confirm orientation before installing rails

Reference: 6.6. Rail Splicing



7.4. INSTALL TOP RAIL FITTINGS

- 7.4.1. Slide short tee fitting onto top of post
- 7.4.2. Position cross opening along guardrail direction
- 7.4.3. Lightly tighten set screw

Final height is set during alignment

Ensure fitting allows full rail insertion and opening is not blocked by post

Reference: 6.5. Returns



7.5. INSTALL RAILING AND SPLICES

- 7.5.1. Insert rails through fittings along full run
- 7.5.2. Fully seat rail in all fittings
- 7.5.3. Install splice fittings as required along the run
- 7.5.4. Lightly tighten set screws

Keep rails adjustable until alignment is complete

Install top rail and midrail together—do not complete one rail for the entire run before the other

Reference: 6.6. Rail Splicing. Review before cutting or installing splice fittings



7.6. INSTALL RETURNS

- 7.6.1. Install fittings at return base and main run
- 7.6.2. Insert and connect return rails
- 7.6.3. Align return with guardrail

Install returns before final tightening

Returns are not required where the guardrail system forms a complete, uninterrupted circuit and all run ends are eliminated.

Reference: 6.5. Returns



7.7. INSTALL OUTRIGGERS (IF REQUIRED)

- 7.7.1. Install outrigger fittings at connection points on the main run
- 7.7.2. Install fittings at outrigger post
- 7.7.3. Insert and connect outrigger rails
- 7.7.4. Align outrigger with main run
- 7.7.5. Leave connections loose for adjustment

Verify required outrigger locations before tightening

Outrigger length: minimum 5 ft



NOTICE Outriggers are not required for the Standard Configuration. Site-specific wind requirements may require outriggers to achieve the required system performance. Verify outrigger requirements in project-specific documents before installation.

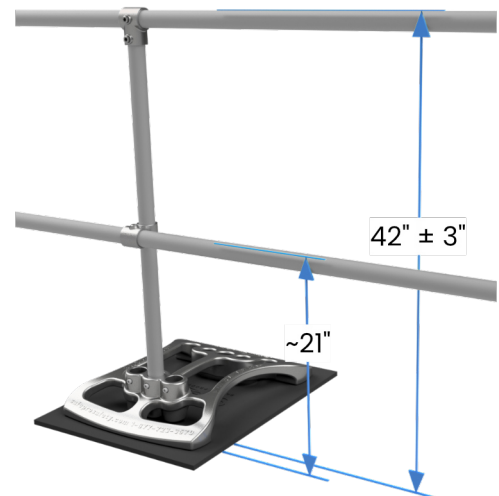
7.8. FINAL ALIGNMENT

- 7.8.1. Align all rails straight and level
- 7.8.2. Set final rail heights across entire run
- 7.8.3. Adjust components to achieve consistent alignment

Complete all alignments before final tightening

Check the full system, not just individual sections

Reference: Section 6.4. Rail Heights



7.9. FINAL TIGHTENING

- 7.9.1. Tighten all set screws
- 7.9.2. Confirm all fittings and connections are secure

Do not overtighten or deform components

Recheck connections after tightening

Reference: 6.7. Fastener Tightening

Set screw torque: 29 ft-lb



8. INSPECTION CHECKLIST

Critical Installation Rules		
Inspection Point	Required action if deficient	Complete
Verify the completed installation complies with all applicable requirements in Section 6. Critical Installation Rules	Adjust system to satisfy all requirements of Section 6	☐

Fittings and Rails		
Inspection Point	Required action if deficient	Complete
Set screws present and tight	Tighten set screws to 29 ft-lb	☐
No cracks, bends, or deformations	Replace damaged fittings	☐
No corrosion or deterioration	Replace damaged or deteriorated fittings	☐
Rails fully inserted and seated	Reseat rails as needed	☐

Posts		
Inspection Point	Required action if deficient	Complete
Posts fully inserted and seated in base receivers	Reseat posts as needed	☐
Posts plumb and aligned	Realign posts	☐
No bends, cracks, or damage	Replace damaged or deteriorated posts	☐
No corrosion or deterioration	Replace damaged or deteriorated posts	☐

Returns / Outriggers		
Inspection Point	Required action if deficient	Complete
Installed where required; connected and stable	Install, align, or tighten before use	☐

Ballasted Bases		
Inspection Point	Required action if deficient	Complete
Pads present, properly positioned, and undamaged	Install missing pads or replace damaged pads	☐
Base fully bearing on surface and properly oriented	Reposition base or correct supporting condition	☐
No shifting or settlement	Reposition system and evaluate cause.	☐
No cracks, damage, corrosion, or deterioration	Replace damaged or deteriorated bases	☐

Note: Tag out the system if any deficiency cannot be immediately corrected.

9. MAINTENANCE AND ONGOING INSPECTION

9.1. INSPECTION FREQUENCY

- Inspect the system before placing it in service.
- Inspect after relocation, repositioning, impact, severe weather, or suspected damage.
- Inspect after any change in site conditions that could affect system stability, including roof work, drainage changes, surface damage, or movement of nearby equipment.
- Inspect at least annually while the system remains in place.

9.2. CORROSIVE ENVIRONMENTS

Systems installed in corrosive environments require more frequent inspection and maintenance. Environmental limitations, warranty exclusions, and approved applications are addressed in the SafePro Limited Warranty.

9.3. ONGOING INSPECTION ITEMS

- Confirm bases are flat, stable, fully bearing on the walking-working surface, correctly oriented, and not shifted from their installed locations.
- Confirm protection pads are present, properly positioned, and not damaged or displaced.
- Confirm posts are fully seated in base receivers, plumb, aligned, and free of damage, deformation, corrosion, or deterioration.
- Confirm guardrail railings are aligned, stable, at required rail heights, and free of damage, deformation, corrosion, or deterioration.
- Confirm returns are installed where required and that required outriggers remain installed, aligned, stable, and connected.
- Confirm base-receiver set screws and fitting set screws are present and tightened to 29 ft-lb.
- Confirm field-cut rail splices, where present, use only manufacturer-approved splice fittings and the center of each splice fitting is located within 2 ft of the nearest post.
- Confirm drainage paths, access routes, and required clearances remain unobstructed.

9.4. DEFICIENCIES AND CORRECTIVE ACTION

- Remove the system from service if any component is missing, loose, damaged, corroded, displaced, modified, or out of compliance with the installation requirements.
- Tag out or restrict access to deficient areas until corrections are complete.
- Do not return the system to service until deficiencies are corrected and the system passes inspection.
- Use only manufacturer-approved replacement components. Unauthorized modifications, repairs, or substitutions may void warranty coverage. Refer to the SafePro Limited Warranty.

APPENDIX A – DEFINITIONS

Counterweighted Base — A weighted base that supports the guardrail system without attachment to the building.

Rubber Protection Pad — A pad placed under the base to help protect the roof surface.

Post — A vertical member inserted into the base receiver to support fittings and rails.

Contoured Post — An architectural bent post configuration covered by this manual.

Top Rail — The upper rail of the guardrail system.

Midrail — The intermediate rail positioned between the top rail and the walking-working surface.

Return — A rail section installed at the end of a guardrail run and connected back to a counterweighted base.

Outrigger — A rail section installed where required by project-specific documents to connect to the continuous run and support the required configuration.

90° Elbow Fitting — A fitting used to change rail direction at a right angle.

Short-Tee Fitting — A fitting that secures a rail while allowing the rail to pass through the connection. Use it to make a through-rail connection without cutting the rail at that point.

Crossover Fitting — A fitting that secures a rail where the rail passes across another component. Use it to hold the rail in position while leaving the connection adjustable until final tightening.

Straight Sleeve Splice Fitting — A fitting used to join rail sections in line.

Continuous Run — The main guardrail run to which returns or outriggers connect.

Walking-Working Surface — The surface on which personnel stand or work adjacent to the guardrail system.

Leading Edge — The roof edge or other open side where a fall hazard exists during installation.

APPENDIX B – INSTALLER QUICK GUIDE

For Reference Only. Use this quick guide with the full installation manual and any project-specific documents provided.

Install Sequence

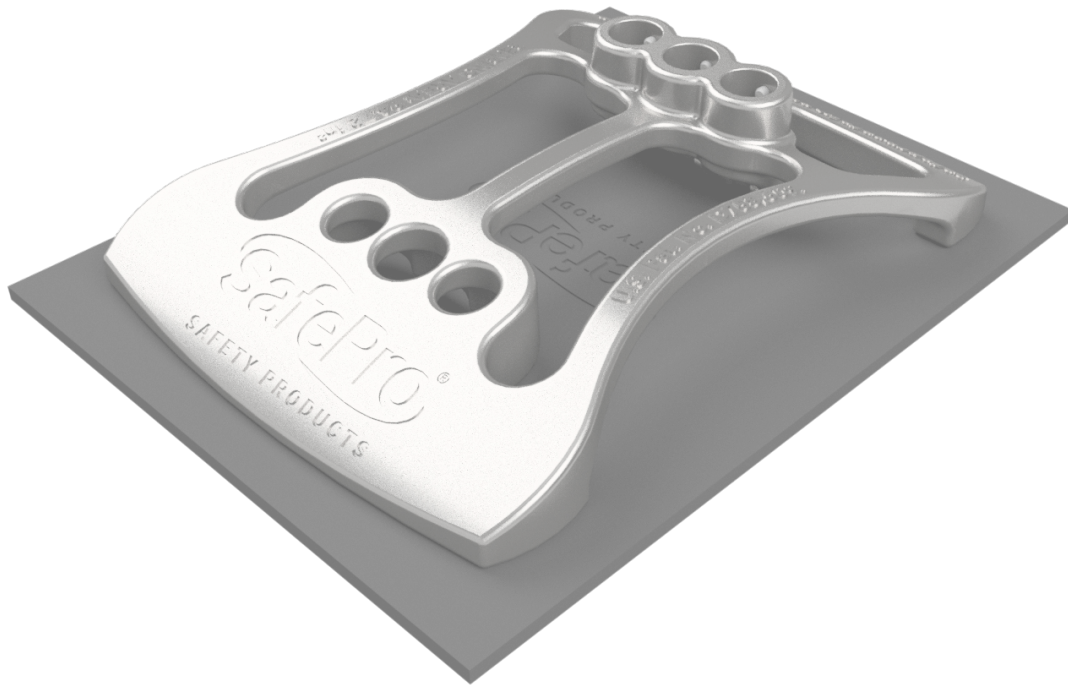
- 1. Place and orient bases** — Place bases at required locations with receivers inboard and the base toe toward the leading edge, unless otherwise approved.
- 2. Install posts** — Insert posts into the base receivers and lightly tighten the base set screws.
- 3. Install rail fittings** — Install crossover and short-tee fittings on the posts and leave them adjustable.
- 4. Install rails and splices** — Insert top rails and midrails through fittings; measure, cut, and splice rails as required.
- 5. Install returns** — Install returns at guardrail run ends unless the run forms a complete, uninterrupted circuit.
- 6. Install required outriggers** — Install outriggers where shown in project-specific design documents.
- 7. Complete final alignment** — Align posts, rails, returns, outriggers, and rail heights before final tightening.
- 8. Torque all set screws** — Tighten all required base, fitting, and splice set screws to 29 ft-lb.
- 9. Complete the final inspection** — Verify the system is fully installed, aligned, tightened, and ready for service.

Critical Requirements

- Post spacing: 10 ft max; 8 ft max where
- Top rail height: 42 in $\pm$ 3 in
- Midrail height: approx. 21 in
- Return length: 5 ft minimum
- Return angle: 90°
- Edge setback: 18 in minimum where required
- Max surface slope: 1:12
- Set screw torque: 29 ft-lb

Final Check

- ☐ Bases flat and stable
- ☐ Base orientation verified: receivers inboard and base toe toward leading edge unless otherwise approved
- ☐ Posts fully inserted
- ☐ Returns installed at all run ends
- ☐ Required outriggers installed
- ☐ Top rail height verified
- ☐ Midrail height verified
- ☐ Splices within 2 ft of posts
- ☐ All set screws torqued to 29 ft-lb Do not overtighten or deform steel members
- ☐ Drainage paths clear
- ☐ Tools and debris removed



SafePro Safety Products is not responsible for installation methods, structural adequacy, site conditions, or project-specific conditions outside of its control.

Proper installation in accordance with this manual and any project-specific documents provided is the responsibility of the installer. Structural verification and regulatory compliance determinations are outside the scope of this installation manual.

This document reflects the product configuration and requirements at the time of publication.

SafePro Safety Products reserves the right to modify product design, specifications, or instructions without notice.

SafePro® and associated product names are trademarks of SafePro Safety Products.

This manual may be reproduced and distributed as necessary for installation, inspection, operation, and maintenance of the SafePro system. Other reproduction or distribution requires permission.

