

VersiShield®

Guardrail Clamping System

Installation Instructions





WARNING



THIS DEVICE SHOULD ONLY BE USED UNDER THE CLOSE SUPERVISION OF AN OSHA CERTIFIED COMPETENT PERSON.

The VersiShield® Guardrail Clamp has been tested and certified by an independent national engineering testing firm as exceeding all applicable United States Federal OSHA temporary guardrail regulations .

DO NOT OVER-TIGHTEN THE CENTRAL TENSION BOLT!
Installer MUST follow proper fall protection procedures during installation!

OSHA's Regulations (Standards - 29 CFR) Guardrail Systems - Non-Mandatory Guidelines for Complying with 1926.502(b) - 1926 Subpart M App B - States in part:

The standard requires guardrail systems and components to be designed and built to meet the requirements of 1926.502(b)(3), (4), and (5). This Appendix serves as a non-mandatory guideline to assist employers in complying with these requirements . . .

(1) For wood railings: Wood components shall be minimum 1500 lb-ft/in(2) fiber (stress grade) construction grade lumber; the posts shall be at least 2-inch by 4-inch (5 cm x 10 cm) lumber spaced not more than 8 feet (2.4 m) apart on centers; the top rail shall be at least 2-inch by 4-inch (5 cm x 10 cm) lumber, the intermediate rail shall be at least 1-inch by 6-inch (2.5 cm x 15 cm) lumber. All lumber dimensions are nominal sizes as provided by the American Softwood Lumber Standards, dated January 1970 . . .



PINCH POINTS CAN CAUSE PERSONAL INJURY



THIS DEVICE IS NOT DESIGNED FOR USE AS AN ANCHORAGE TIE-OFF POINT.

FAILURE TO OBSERVE MANUFACTURERS INSTRUCTIONS MAY RESULT IN SERIOUS OR FATAL INJURY.



WARNING



VersiShield® Guardrail Clamping System Installation Procedures for Stair Rail Applications

STEP ONE

ASSEMBLE CLAMP AND POST

Cut 2 - 2X4 studs using construction grade (stress grade) lumber to 42 inch lengths and fasten together using 2- $\frac{1}{2}$ inch long deck screws or framing nails to create a double 2X4 post. Insert the post into the center core of the VersiShield™ and secure with a $\frac{3}{8}$ X 2- $\frac{1}{2}$ inch lag screw and washer through the provided hole in the side wall (See Figure 1).



Figure 1

STEP TWO

PLACEMENT OF POSTS

Measure the distance between the post/clamps. Federal OSHA recommends that the maximum distance between posts should not exceed 8 feet on centers using construction grade (stress grade) lumber for guardrail systems.

Loosen the central tension bolt, disengage the locking mechanism and slide up the stanchion. Flip the ring back and under the locking mechanism to hold it in place (See Figure 2).

While holding the stanchion firmly, grab the VersiShield from the back where it says "LIFT HERE" and raise the main body to extend the bottom jaw section until fully open.



Figure 2

STEP THREE

INSTALL CLAMP AND POST ONTO THE STAIR STRUCTURE

With the jaw fully extended, swing the VersiShield over the edge of the stair structure and rest the base on the stair tread (See Figure 3).

Unhook the locking mechanism from the ring and slide down onto the top plate, lift stanchion using the lift ring and place locking mechanism into corresponding hole (See Figure 4).

Tighten the central tension bolt while holding the stanchion in place. Firmly move the stanchion back and forth while tightening the tension bolt so that the stanchion is secured underneath and perpendicular to the bottom of the stair structure (See Figure 5).

Securely tighten the central tension bolt using a 15/16 inch wrench or socket. **DO NOT OVER TIGHTEN!**



Figure 3



Figure 4

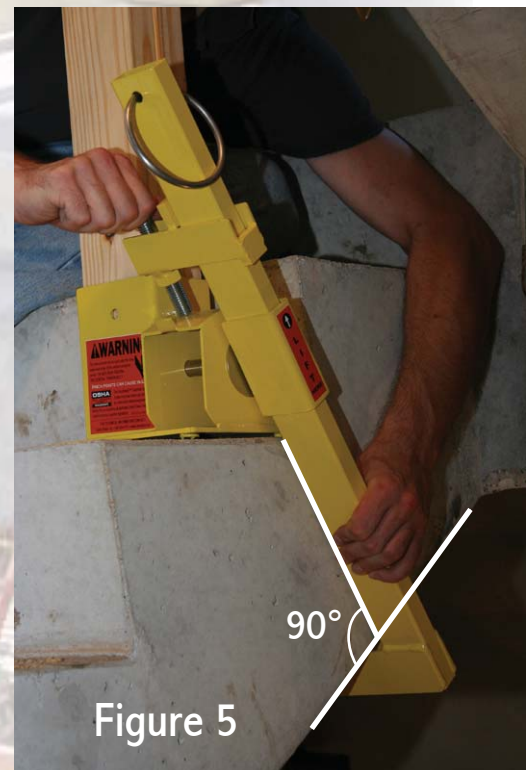


Figure 5

STEP FOUR

ATTACH MID RAILS AND TOP RAILS TO THE POSTS

For mid rail placement, measure from the top of the stair tread up to a height of 21 inches and mark the post (See Figure 6).

Federal OSHA Standard 1926.1052(c)(4)(i) states: Midrails, when used, shall be located at a height midway between the top edge of the stairrail system and the stairway steps (See Figure 7).

For top rail placement, attach the top rail flush with the top of the 42 inch post.

Federal OSHA Standard 1926.1052(c)(7) states: When the top edge of a stairrail system also serves as a handrail, the height of the top edge shall be not more than 37 inches (94 cm) nor less than 36 inches (91.5 cm) from the upper surface of the stairrail system to the surface of the tread, in line with the face of the riser at the forward edge of the tread (See Figure 8).



Figure 6



Figure 7



Figure 8

OSHA Regulations (Standards - 29 CFR) Stairways. - 1926.1052

1926.1052(a)

General. The following requirements apply to all stairways as indicated:

1926.1052(a)(1)

Stairways that will not be a permanent part of the structure on which construction work is being performed shall have landings of not less than 30 inches (76 cm) in the direction of travel and extend at least 22 inches (56 cm) in width at every 12 feet (3.7 m) or less of vertical rise.

1926.1052(a)(2)

Stairs shall be installed between 30 deg. and 50 deg. from horizontal.

1926.1052(a)(3)

Riser height and tread depth shall be uniform within each flight of stairs, including any foundation structure used as one or more treads of the stairs. Variations in riser height or tread depth shall not be over 1/4-inch (0.6 cm) in any stairway system.

1926.1052(a)(4)

Where doors or gates open directly on a stairway, a platform shall be provided, and the swing of the door shall not reduce the effective width of the platform to less than 20 inches (51 cm).

1926.1052(a)(5)

Metal pan landings and metal pan treads, when used, shall be secured in place before filling with concrete or other material.

1926.1052(a)(6)

All parts of stairways shall be free of hazardous projections, such as protruding nails.

1926.1052(a)(7)

Slippery conditions on stairways shall be eliminated before the stairways are used to reach other levels.

1926.1052(b)

Temporary service. The following requirements apply to all stairways as indicated:

1926.1052(b)(1)

Except during stairway construction, foot traffic is prohibited on stairways with pan stairs where the treads and/or landings are to be filled in with concrete or other material at a later date, unless the stairs are temporarily fitted with wood or other solid material at least to the top edge of each pan. Such temporary treads and landings shall be replaced when worn below the level of the top edge of the pan.

1926.1052(b)(2)

Except during stairway construction, foot traffic is prohibited on skeleton metal stairs where permanent treads and/or landings are to be installed at a later date, unless the stairs are fitted with secured temporary treads and landings long enough to cover the entire tread and/or landing area.

1926.1052(b)(3)

Treads for temporary service shall be made of wood or other solid material, and shall be installed the full width and depth of the stair.

1926.1052(c)

Stairrails and handrails. The following requirements apply to all stairways as indicated:

1926.1052(c)(1)

Stairways having four or more risers or rising more than 30 inches (76 cm), whichever is less, shall be equipped with:

1926.1052(c)(1)(i)

At least one handrail; and

1926.1052(c)(1)(ii)

One stairrail system along each unprotected side or edge.

Note: When the top edge of a stairrail system also serves as a handrail, paragraph (c)(7) of this section applies.

1926.1052(c)(2)

Winding and spiral stairways shall be equipped with a handrail offset sufficiently to prevent walking on those portions of the stairways where the tread width is less than 6 inches (15 cm).

1926.1052(c)(3)

The height of stairrails shall be as follows:

1926.1052(c)(3)(i)

Stairrails installed after March 15, 1991, shall be not less than 36 inches (91.5 cm) from the upper surface of the stairrail system to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

1926.1052(c)(3)(ii)

Stairrails installed before March 15, 1991, shall be not less than 30 inches (76 cm) nor more than 34 inches (86 cm) from the upper surface of the stairrail system to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

1926.1052(c)(4)

Midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members, shall be provided between the top rail of the stairrail system and the stairway steps.

1926.1052(c)(4)(i)

Midrails, when used, shall be located at a height midway between the top edge of the stairrail system and the stairway steps.

1926.1052(c)(4)(ii)

Screens or mesh, when used, shall extend from the top rail to the stairway step, and along the entire opening between top rail supports.

1926.1052(c)(4)(iii)

When intermediate vertical members, such as balusters, are used between posts, they shall be not more than 19 inches (48 cm) apart.

1926.1052(c)(4)(iv)

Other structural members, when used, shall be installed such that there are no openings in the stairrail system that are more than 19 inches (48 cm) wide.

1926.1052(c)(5)

Handrails and the top rails of stairrail systems shall be capable of withstanding, without failure, a force of at least 200 pounds (890 n) applied within 2 inches (5 cm) of the top edge, in any downward or outward direction, at any point along the top edge.

1926.1052(c)(6)

The height of handrails shall be not more than 37 inches (94 cm) nor less than 30 inches (76 cm) from the upper surface of the handrail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

1926.1052(c)(7)

When the top edge of a stairrail system also serves as a handrail, the height of the top edge shall be not more than 37 inches (94 cm) nor less than 36 inches (91.5 cm) from the upper surface of the stairrail system to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

1926.1052(c)(8)

Stairrail systems and handrails shall be so surfaced as to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing.

1926.1052(c)(9)

Handrails shall provide an adequate handhold for employees grasping them to avoid falling.

1926.1052(c)(10)

The ends of stairrail systems and handrails shall be constructed so as not to constitute a projection hazard.

1926.1052(c)(11)

Handrails that will not be a permanent part of the structure being built shall have a minimum clearance of 3 inches (8 cm) between the handrail and walls, stairrail systems, and other objects.

1926.1052(c)(12)

Unprotected sides and edges of stairway landings shall be provided with guardrail systems. Guardrail system criteria are contained in subpart M of this part.

ENGINEERING REPORT SUMMARY

Certificate of Test *Stress Engineering Services, Inc.*

13800 Westfair East Drive
Houston, Texas 77041

TEST DATE: March 8, 2006 PN 113569

TEST CUSTOMER: Safety Maker, Houston TX

TEST PIECE: VersiShield, Lightweight Short Samples 1-4

TEST REQUIREMENTS: Proof test samples by pulling in a horizontal direction. Samples 1&2 were mounted on concrete stairs. Sample 3&4 were mounted on concrete flat surface with varying thicknesses.

TEST RESULTS:

Sample 1- was mounted on stairs 9.3125" thick and pulled to 497 lbs. No failure of the sample occurred. Test stopped per Safety Maker representative.

Sample 2- was mounted on stairs 13.0625" and pulled to 478 lbs. No failure of the sample occurred. Test stopped per Safety Maker representative.

Sample 3- was mounted on flat surface 9.5" thick and pulled to 411 lbs. No failure of the sample occurred. Test stopped per Safety Maker representative.

Sample 4- was mounted on flat surface 13.25" thick and pulled to 256 lbs. Test was stopped because sample slipped off test concrete test fixture due to a problem earlier in the test with a concrete block moving.

Be sure and visit our website at www.safetyboot.com for information on our other guardrail products:



**Safety
Boot**®

SurShield
Guardrail Clamping System



U.S. Patent No. 7234689
U.S. Patent No. 7284746
U.S. Patent No. 7530551
U.S. and Foreign Patents Pending
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IMPORTANT NOTE:

Installer shown in these instructions is working on the lowest stair level, below six feet. ALWAYS wear the proper fall protection when installing this product.

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