

StringerShield® Stair Rail System

INSTALLATION INSTRUCTIONS

IMPORTANT: Remember to always wear the proper personal fall arrest equipment when installing this product! Until the top rail and mid rail are in place, this system is not in OSHA compliance. The StringerShield® is much easier to install using two workers.

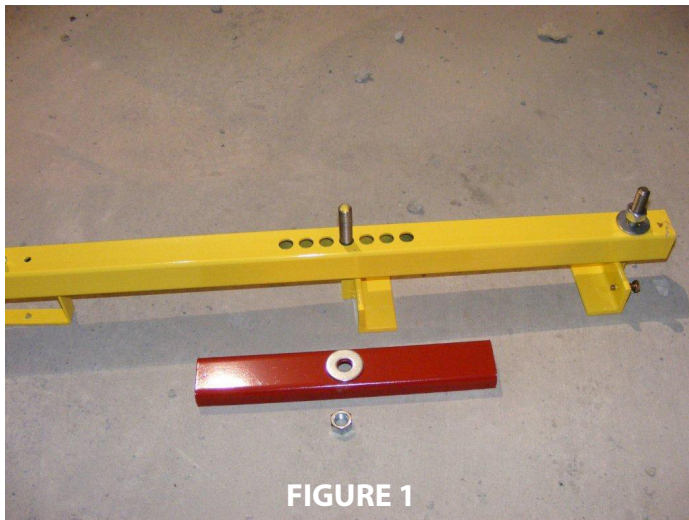


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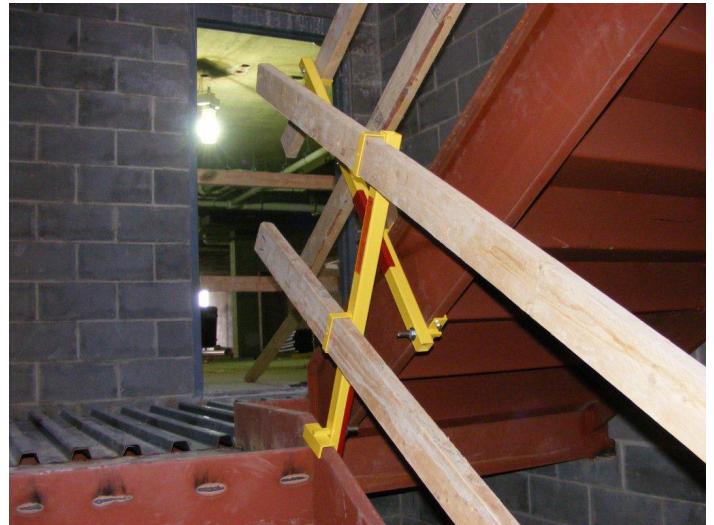
STEP 1

Remove red support bar and upper (or top) clip completely from stanchion (**FIGURE 1**).



STEP 2

Loosen the lower (or bottom) clip to allow ample room for the lower clip to slip over the bottom side of the stringer or pan stairway to be protected.



STEP 3

Loosen the two adjustment screws found on the lower clip so the adjustment screws do not interfere with the bottom of the unprotected stringer.



STEP 4

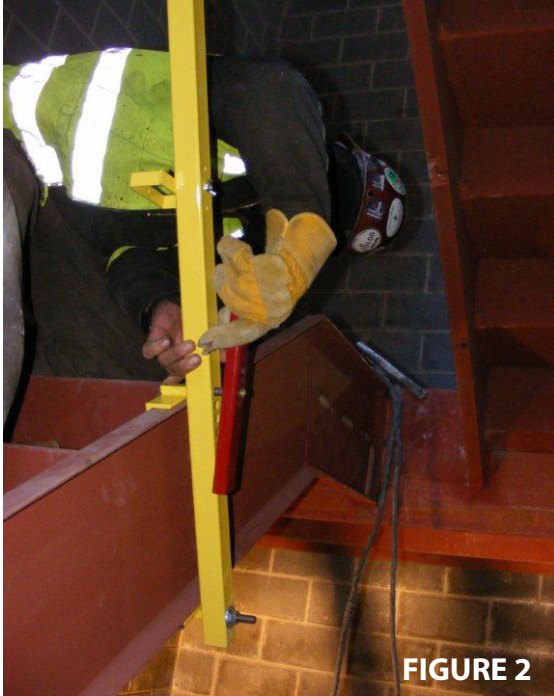
Swing and lift the StringerShield into position so the bottom clip is snug against the bottom of the unprotected stairway (**FIGURE 3 ON NEXT PAGE**).

STEP 5

Hand tighten the nut on the bottom clip of the StringerShield unit until snug. This nut will be fully secured and tightened in step 6.

STEP 6

While holding the StringerShield up and in place, insert the top clip into the closest hole position. Replace red support bar, washer and nut back in position prior to removal in step 1 and hand tighten (FIGURE 2).

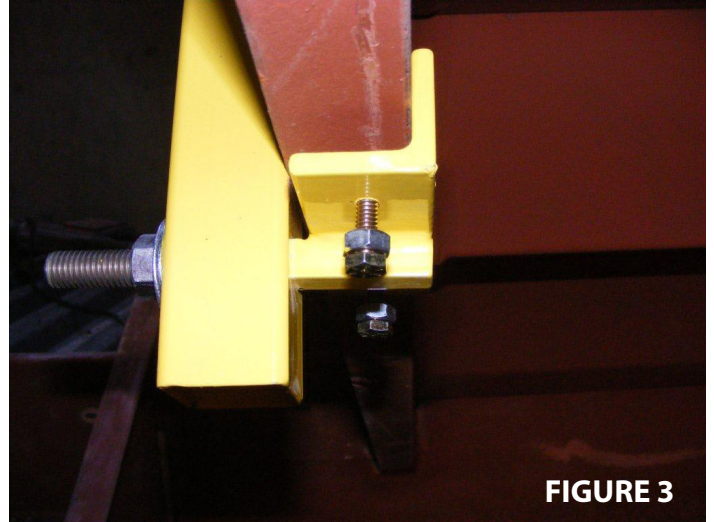


STEP 8

Tighten the two large nuts found on each clip until tight and no movement is possible (FIGURE 4).



STEP 7

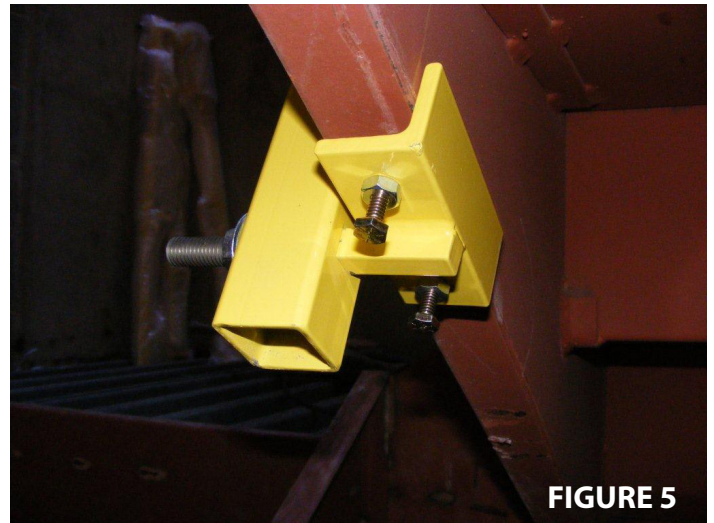


If any "play" or movement is found in the space between the upper and lower clips, use the two small adjustment screws on the bottom clip to remove any "play" or movement (FIGURE 3).

NOTE: DO NOT over tighten the adjustment screws. The adjustment screws should be hand tightened ONLY to remove any movement up and down.

STEP 9

Tighten the two small locking nuts on each adjustment screw on the lower clip to keep the adjustment screws in place (FIGURE 5).



STEP 10

Cut 2X4 stud material* to desired length for top and mid rail. Attach the 2X4's using the pre-drilled hole on each 2X4 bracket using a deck screw no longer than 1-1/2 inch in length.

ALTERNATE THIN CLIP APPLICATIONS

The StringerShield Stair Rail Clamping System is available with the standard top clip and bottom clip to accommodate 1.5 to 2.5 inch **stringer CHANNEL width** as shown in FIGURES 2 -5 in these [instructions](#) and on the right side in FIGURE 6.

Safety Maker, Inc. has introduced an **ALTERNATE THIN CLIP** which enables the top clip and / or bottom clip to accommodate 0.25 to 1.5 inch **stringer PLATE width** as shown on the left side in FIGURE 6 and in FIGURE 7 below.



FIGURE 6



FIGURE 7

When using the **ALTERNATE THIN CLIP** which enables the top clip and / or bottom clip to accommodate 0.25 to 1.5 inch **stringer PLATE width**, be sure the stringer plate is secured between the stanchion and the thin clip as shown in FIGURE 7.



STRESS ENGINEERING REPORTS

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CERTIFICATE OF TEST	
Client:	Safety Maker Inc. Houston, TX
Date:	December 16, 2009
Client P.O.:	STRESS121609
MOHR Job No.:	1751054
Project Mgr.:	Patrick McDonald
Attention:	Andrew H. Hiliard
Project Description:	Safety Maker Inc. contacted Mohr Engineering Division of Stress Engineering Services Inc. for testing two different guardrail products. Each Product is tested at its minimum and maximum setting. The load is recorded and corresponding images of the specimen during loading are provided. The parashield tests were performed on equal leg length with smooth contact surface specimens. The stringer shield tests are performed on various wall thickness stanchions with various thickness support bars. These values are provided at the plots of the applied test loads.
Test Sample Identification:	SS2 - 1/8" wall thickness stanchion with 1/8 thickness support bar. StringerShield Stair Rail Clamp
Test Equipment:	500 lbs Load Cell Hydraulic Actuator
Test Procedure:	Sample 6 (SS2 - 1/8" wall thickness stanchion with 1/8 thickness support bar) was adjusted to its minimum arrangement of 8 inches and mounted to an 8 inch plate. The sample is then pulled in vertical direction.
Technician(s):	Dan Bacarisse
Test Results:	Max load of 700 lbs is achieved. Test stopped per Safety Maker representative.
Conclusions/Certification:	N/A
Witness:	Dan Bacarisse
Representing:	MOHR Engineering Division
Prepared By:	Saltuk B. Aksu
Date:	12/16/09

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Test Sample Identification:	SS3 - 1/8" wall thickness stanchion with 1/8 thickness support bar. StringerShield Stair Rail Clamp
Test Equipment:	500 lbs Load Cell Hydraulic Actuator
Test Procedure:	Sample 7 (SS3 - 1/8" wall thickness stanchion with 1/8 thickness support bar) was adjusted to its maximum arrangement of 12 inches and mounted to a 12 inch plate. The sample is then pulled in vertical direction.
Technician(s):	Dan Bacarisse
Test Results:	Max load of 504 lbs is achieved. Test stopped per Safety Maker representative.
Conclusions/Certification:	N/A
Witness:	Dan Bacarisse
Representing:	MOHR Engineering Division
Prepared By:	Saltuk B. Aksu
Date:	12/16/09

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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.







StringerShield[®] Stair Rail System



PARTS LIST ORDER FORM

STANDARD ORDER PARTS

PART IMAGE	PART NUMBER	PART NAME	PRICE PER UNIT	UNITS ORDERED	UNIT AMOUNT
	C-0600-10	STANDARD Single 2 X 4 Holder			
	C-0600-12	STANDARD Red Support Bar			
	C-0600-09	STANDARD Top Clip 1.50" to 2.50"			
	C-0600-08	STANDARD Bottom Clip 1.50" to 2.50"			

NOW AVAILABLE! SPECIAL ORDER PARTS

PART IMAGE	PART NUMBER	PART NAME	PRICE PER UNIT	UNITS ORDERED	UNIT AMOUNT
	C-0600-14	SPECIAL Double 2 X 4 Holder			
	C-0600-16	SPECIAL Thin Clip Set 0.25" to 1.50"	EACH		

SUB-TOTAL _____
TAX _____
FREIGHT _____
GRAND TOTAL _____



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IMPORTANT INSTALLATION INFORMATION

All specifications and dimensions for building compliant railing systems given within these installation instructions are written to meet United States Federal OSHA requirements of 1926.502(b)(3), (4), and (5) which are subject to change. Individual U.S. States with their own State run OSHA agencies might have slightly different and varying specifications for guardrail requirements. Be sure to check and confirm if your particular state follows Federal OSHA or State OSHA regulations. Always follow the specific safety regulations for your state or region.

Make sure each person reads and understands these instructions prior to use. Failure to observe this warning could result in serious injury or death. Manufacturer assumes no liability in the event of improper installation, product misuse, or failure of wood construction substrate. Never alter or modify the StringerShield. Make sure that the top rail and mid rail do not create a projection hazard. Keep the top and mid rail overhang length to a minimum and/or block terminal ends with a vertical 2x4 member between the top and mid rails.

ALWAYS CAREFULLY INSPECT EACH STRINGERSHIELD AND HARDWARE DAILY AND BEFORE EVERY NEW INSTALLATION. REPLACE IMMEDIATELY IF YOU NOTICE ANY SIGNS OF EXCESSIVE WEAR, DAMAGE, ABUSE OR STEEL DEGRADATION.

The 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. This System Is Designed & Tested For Use As A Temporary Stair Rail System.

Be sure the top rail and mid rail do not create a projection hazard when extending beyond the stanchion.

• It Is Not Designed For Use As A Guardrail System On Horizontal Surfaces •

***OSHA Regulations (Standards - 29 CFR)**

Guardrail Systems - Non-Mandatory Guidelines for Complying with 1926.502(b) -

1926 Subpart M App B states that for wood railings:

... (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 . . .

FOR TECHNICAL INFORMATION PLEASE CONTACT:



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US Patent: 9493959

US Patent: 9598870

CA Patent: 2798629

AU Patent: 2011247977

U.S. & Foreign Patents Pending