

Railing installation instructions

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READ CAREFULLY BEFORE ANY RAILING INSTALLATION

Before starting installation on-site, we strongly recommend that you read this document in full in order to understand any installation issues.

Our guarantee only covers components from our range provided that they have been installed as an assembly (for example, our guarantee will not cover posts used with exotic wood boards).

We disclaim all liability and void our guarantee in case of failure to comply with the installation instructions below.

The railing meets the requirements of French standard NF P01-013 of August 1988, of Eurocode 1991-1-1 of March 2003/ A1 of 2009 and of French National Annex NF P06-111-2/A1 of March 2009.

It has been tested and validated in the installation configurations described below.

This product is designed and EXCLUSIVELY reserved for residential applications (see class A and B under Eurocode 1991-1-1 of March 2003).

It also adheres to French standard NF P 01-012 on railing dimensions.







- 1 POST SUPPORT (assembly of 2 half-supports + screws) 1 x 2
- 2 POST 2 x 2
- 3 COMPOSITE WOOD BOARD 3 x 3
- 4 RETAINING RAIL 4 x 1
- 5 RAIL CONNECTOR 5 x 2
- 6 M6 TFHC SCREW 6 x 4
- 7 CABLE + THREADED ENDS ASSEMBLY 7 x 3
- 8 RIGHT-HANDED THREAD CABLE TIE 8 x 3
- 9 LEFT-HANDED THREAD CABLE TIE 9 x 3
- 10 MEDIUM-SIZED SPACER 10 x 2
- 11 LARGE-SIZED SPACER 11 x 4

- 12 SMALL-SIZED SPACER x 2
- 13 HANDRAIL x 1
- 14 HANDRAIL CONNECTOR x 2
- 15 SLEEVE x 2
- 16 UPPER SLEEVE x 2
- 17 BLANKING PLATE x 4
- 18 SELF-TAPPING SCREW x 8
- 19 M6x45 STHC SCREW x 2
- 20 M3x8 TFHC SCREW x 2

The quantities of the parts indicated above are valid for a complete railing; i.e. a main package and a secondary package.



CALCULATING THE NUMBER OF RAILING ELEMENTS REQUIRED

The railing is shipped in 2 boxes (sold separately): a main package and a secondary package.



Various configurations are possible:

For a single railing, the user will need one main package and one secondary package.



For a linear assembly of 2 railings OR for a 90° angle, the user will need 2 main packages and 1 secondary package.



NB - FOR YOUR SAFETY

It is IMPERATIVE to respect the POST SUPPORT INSTALLATION DIRECTION (see diagrams below) in order to comply with the requirements of French standard NF P01-013 of August 1988, of Eurocode 1991-1-1 of March 2003/ A1 of 2009 and of French National Annex NF P06-111-2/A1 of March 2009.

The railing has been tested ONLY in this configuration, so its durability is only guaranteed therein.



COMMONLY ENCOUNTERED CONFIGURATIONS



Configuration on solid wood bearers

With a railing + decking boards + solid wood bearers assembly, it is IMPERATIVE to bolt the post support + decking boards + bearers assembly. We recommend using stainless steel M10 bolts (bolts + washers + nuts).



BE SURE to allow at least 25 mm between the edge of the decking and the bolt.





Configuration with FOREXIA® bearers

The railing post supports should be fastened directly onto the concrete slab (same method as installing on concrete slab). Under no circumstances must the railing be screwed onto the boards + composite wood bearers assembly.

You should use a board large enough to install the railings around the decking perimeter. French standard NF P 01-012 defines a total railing height of 1000 mm or more. Since our railing has a total height of 1100 mm, the extra thickness of the bearers + boards (73 mm) will not be a hindrance in terms of the standard (i.e. in this very specific case, a total theoretical height of 1027 mm).





NB: In view of the recommendations above, we reiterate that Silvadec is under no circumstances responsible for the choice of fastenings or support. The laboratory tests that we have commissioned comply with the provisions of French Standard NF P01-013 of August 1988, of Eurocode 1991-1-1 of March 2003/ A1 of 2009 and of French National Annex NF P06-111-2/A1 of March 2009. Only the railing has been tested and validated - the fastenings and support are outside the standard's scope of testing.

INSTALLATION PROCEDURE

TOOLS AND MATERIALS FOR INSTALLATION

- Tape measure
- · Pair of gloves
- · Set of Allen keys
- Screwdriver + no.2 POZI bit
- 2 adjustable spanners (or 1/4 inch spanner)

INSTALLATION PROCEDURE





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SCREW each of the threaded ends of the 3 cables onto the corresponding cable ties.

NB: on each of the cables there is a right-hand threaded end **8** and a left-hand threaded end **9** So there are cable attachments with right-handed and left-handed tapping. The marking L indicates a left-handed thread, and R indicates a right-handed thread.



STEP 7: STACK the pre-assembled cables into the slots in the posts, placing spacers in between.

NB: The packet contains 3 types of spacer of different lengths (2 small, 2 medium and 4 large). The stacking MUST be performed as follows in each of the posts:



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INSERT a connector 14 (see diagram below) at each end of the handrail 13 and SCREW IN an M6x16 TFHC screw 6 **TAKE CARE** with the shape of the connectors. DO NOT confuse them with the rail connectors (see paragraph on assembling the rail). Do NOT fully TIGHTEN the M6x16 TFHC screws



STEP 11: ASSEMBLING THE HANDRAIL WITH THE SLEEVES

Now **POSITION** the handrail on the railing.

The pre-assembled connectors on the handrail must be positioned inside the slots in the SLEEVES.



STEP 12

INSERT and fully SCREW into the connectors 2 M6x45 flat-ended GRUB SCREWS (19) provided for this purpose.

To do so, the positioning of the M6x16 TFHC screw 6 on the handrail 13 must be adjusted so as to best position the connector in the axis of the M6x45 flat-ended screw 19



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STEP 13: TIGHTENING THE CABLES

TIGHTEN THE CABLES using 2 spanners. They must be TIGHTENED one by one using the 2 spanners SIMULTANEOUSLY on the same cable.



SPECIAL CASE OF CORNERS

Installing a corner railing is a special case, since it requires the following components to be cut and drilled:

- Cut the rail lengthwise (- 7 mm) + drill a hole 6.5 mm in diameter 30 mm from the edge:
- Cut the handrail lengthwise (-7 mm) + drill a hole 6.5 mm in diameter 40.5 mm from the edge
- Cut the 3 composite wood boards lengthwise (-7 mm)



The cutting can be carried out by hand, using a hacksaw for example, or mechanically using a pendulum saw equipped with a blade for metals.

RAILINGS OF SPECIFIC WIDTH

In the case of a project not matching the standard measurements of the Silvadec[®] railing, its width can be reduced. To do so, it is necessary to obtain a packet of 3 Silvadec manual turnbuckles.

3 manual turnbuckles

To reduce the width of a railing, the following operations must be performed:

1) CUT the 3 cables using cable cutting pliers. The cable length is obtained by subtracting 175 mm from the "RAILING OVERALL WIDTH" (e.g., a railing overall width of 950 mm would give a cable length of 950-175=775 mm). The **RIGHT-HAND** threaded ends should be replaced with turnbuckles.



The Silvadec railing can be installed for ramps or staircases ranging from 0 to 40°. Be aware however that when the angle increases, the maximum centrecentre distance between the posts E decreases. E.g.: for an angle of 40°, Emax = 800 mm.

Installing a staircase railing requires the following components to be cut and/or drilled:

- Cut the 3 composite wood boards 1, 2 and 2'
- Cut the rail 3 + drill a hole 6.5 mm in diameter
- Cut the stainless steel cables 4
- Cut the handrail 5 + drill a hole 6.5 mm in diameter + drill a hole 4 mm in diameter + drill a hole 12 mm in diameter

The cutting can be carried out by hand, using a hacksaw for example, or mechanically using a pendulum saw equipped with a blade for metals. The cuts to be made will depend on the staircase angle α , and on the centre-centre distance of the posts E. For the cut dimensions, refer to the table of values on page 15 of this manual.

It is also necessary to obtain a packet of 3 Silvadec manual turnbuckles, for fitting the cables.

Important: Before cutting these components, an accurate measurement of the staircase angle is necessary, since a small difference between the theoretical angle and the actual angle of the staircase can have a considerable effect on the cutting lengths (see table of values).

To respect the visual continuity of the railing, the post support + boards + rail stacked height must measure 500 +/- 5 mm. The stacked height is adjusted via the height of the board 1.



STEP 1: CUTTING THE BOARD 1 Cut no.1: Bevel CUT the board, according to the staircase angle a and the centre-centre distance of the posts E. Cut no.2: To adjust the stacked height, CUT the board lengthwise. L1 L2 L2 L3 L4 L4 L5</

Note: In certain special cases (non-standard steps, pronounced angles, etc.), the board 1 can rest directly on the step treads.

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CUTTING THE COMPONENTS





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For an elegant finish, it is possible to sand the corner of the composite wood profile of the handrail, protruding from the bottom post.

STEP 6: TIGHTENING THE CABLES

Tightening the cables is a key point in installing the railing. The user must apply optimum tightening: sufficient to **tense the cables**, while avoiding deforming the posts or weakening the cable ties. Note: over time, a slight slackening of the cables may be observed, which is normal. In this case we advise retightening.

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Handrail	Cables	Retaining rail	Board 2 and 2'		Board 1	Angle a (d")	E (mm)	
L5	4	5	5	ы	ъ	2		
946	954	954	686	155	153	686	ы	
947	955	955	990	155	152	066	6	
949	957	957	992	155	151	992	7	
951	959	959	995	154	150	995	8	
954	962	962	997	154	149	997	9	
957	965	965	1000	153	148	1000	10	
960	968	968	1003	152	146	1003	11	
963	971	971	1007	151	145	1007	12	
967	975	975	1011	151	143	1011	13	
971	979	979	1015	149	141	1015	14	-
975	984	984	1020	148	139	1020	15	000
980	886	886	1025	147	137	1025	16	
985	993	993	1030	146	134	1030	17	
990	666	666	1036	144	132	1036	18	
996	1005	1005	1042	142	129	1042	19	
1002	1011	1011	1048	141	126	1048	20	
1009	1018	1018	1055	139	123	1055	21	
1016	1025	1025	1062	137	120	1062	22	
1023	1032	1032	1070	135	117	1070	23	
1031	1040	1040	1078	132	114	1078	24	
1039	1048	1048	1087	130	110	1087	25	
Handrail	Cables	Retaining rail	Board 2 and 2'	Board 1			Angle a (d'')	E (mm)
L5	L4	5	5	11	ъ	2		
1046	1054	1054	1089	155	153	1089	5	
1048	1056	1056	1091	155	152	1091	م	
1050	1058	1058	1093	155	151	1093	7	
1052	1060	1060	1096	154	150	1096	∞	
1055	1063 .	1063 .	1099 .	154	149	1099 .	9	1100
1058 1	1066 1	1066 1	1102 1	153	148	1102 1	10	
1062	1070	1070	1105	152	146	1105	11	
1065	1073 .	1073 .	1109	151	145	1109	12	
1069	1078 .	1078 .	1114	151	143	1114 .	13	
1074	1082	1082	1118	149	141	1118	14	

1									
	Handrail	Cables	Retaining rail	Board 2 and 2'		Angle a (d")	= (mm)		
	L5	۲4	5	5	hí	ъ	2		
	644	652	652	688	155	153	688	5	
	646	654	654	689	155	152	689	6	
	647	655	655	690	155	151	690	7	
	648	656	656	692	154	150	692	8	
	650	658	658	694	154	149	694	9	
	652	660	660	696	153	148	696	10	
	654	662	662	698	152	146	698	11	
	656	665	665	700	151	145	700	12	
	659	667	667	703	151	143	703	13	
	662	670	670	706	149	141	706	14	
	665	673	673	709	148	139	709	15	
	688	676	676	713	147	137	713	16	
	671	680	680	716	146	134	716	17	
	675	683	683	720	144	132	720	18	
	679	687	687	724	142	129	724	19	
	683	692	692	729	141	126	729	20	
	688	696	696	734	139	123	734	21	
	692	701	701	739	137	120	739	22	700
	697	706	706	744	135	117	744	23	
	703	712	712	750	132	114	750	24	
	708	717	717	756	130	110	756	25	
	714	723	723	762	127	107	762	26	
	721	730	730	769	125	103	769	27	
	727	736	736	776	122	99	776	28	
	734	743	743	783	119	95	783	29	
	741	751	751	791	115	91	791	30	
	749	758	758	799	112	87	799	31	
	757	766	766	808	108	83	808	32	
	765	775	775	817	104	78	817	33	
	774	784	784	826	100	74	826	34	
	784	794	794	836	96	69	836	35	
	794	803	803	847	92	64	847	36	
	804	814	814	858	87	59	858	37	
	815	825	825	869	82	54	869	38	
	826	836	836	881	77	49	881	39	
	838	849	849	894	72	44	894	40	

Handrail	Cables	Retaining rail	Board 2 and 2'		Board 1	Angle a (d")	E (mm)	
۲5	5	۲3	5	ы	7	2		
444	452	452	487	155	153	487	5	
444	452	452	488	155	152	488	6	
445	453	453	489	155	151	489	7	
446	454	454	490	151	150	490	8	
448	456	456	491	154	149	491	9	
449	457	457	492	153	148	492	10	
450	458	458	494	152	146	494	11	
452	460	460	496	151	145	496	12	
454	462	462	498	151	143	498	13	
456	464	464	500	149	141	500	14	
458	466	466	502	148	139	502	15	
460	468	468	505	147	137	505	16	
462	471	471	507	146	134	507	17	
465	473	473	510	144	132	510	18	
467	476	476	513	142	129	513	19	
470	479	479	516	141	126	516	20	
473	482	482	520	139	123	520	21	
477	485	485	523	137	120	523	22	500
480	489	489	527	135	117	527	23	
484	493	493	531	132	114	531	24	
488	497	497	535	130	110	535	25	
492	501	501	540	127	107	540	26	
496	505	505	544	125	103	544	27	
501	510	510	549	122	99	549	28	
505	515	515	555	119	95	555	29	
510	520	520	560	115	91	560	30	
516	525	525	566	112	87	566	31	
521	531	531	572	108	83	572	32	
527	537	537	578	104	78	578	33	
533	543	543	585	100	74	585	34	
540	549	549	592	96	69	592	35	
546	556	556	599	92	64	599	36	
553	563	563	607	87	59	607	37	
561	571	571	615	82	54	615	38	
569	579	579	624	77	49	624	39	
577	587	587	633	72	44	633	40	

OPTIONAL ACCESSORY

It is possible to replace the blanked off parts of the posts with LED strips. These LED strips can be placed instead of the 'removable tabs' on the posts. So depending on the configuration, the user may either:

LED strips

• INSERT 1 Silvadec® LED strip

Composite wood board

Composite wood board

• INSERT 2 Silvadec® LED strips

To find out more about installing an LED kit, refer to the instructions for use of the Silvadec LED accessory (PU22) available on our website: http://www.silvadec.com

Whatever the chosen configuration, the railing meets the requirements of French standard NF P01-013 of August 1988, of Eurocode 1991-1-1 of March 2003/ A1 of 2009 and of French National Annex NF P06-111-2/A1 of March 2009.

MAINTENANCE AND PRECAUTIONS FOR USE

In addition to the information below, refer to the Silvadec® maintenance sheet that can be downloaded from our website http://www.silvadec.com

COMPOSITE WOOD COMPONENTS

We recommend washing the composite wood railing boards with water and a brush, brushing lengthwise, twice a year.

- For standard cleaning to remove grease or oil traces, or to remove stains derived from pollution or plant materials, use the SILVANET® cleaning product for composite wood (see instructions for use on the product).
- For stubborn scratches or stains, use a brass brush, taking care to wet the boards first to prevent them from bleaching.
- Brushing or sanding may result in a slight discolouration that will lessen over time.
- For dirt stains, refer to the SILVADEC® railing maintenance sheet, available on the website http://www.silvadec.com
- · Do not use solvents, apply stains or paint.
- FOREXIA® composite wood railing boards do not require any special protection.
- NB: Damp stains may appear in shaded or semi-protected areas (plants, covered areas...).

These stains will disappear naturally over time upon exposure to UV and the elements. It is possible to accelerate this process by cleaning the area concerned using a scrubbing brush and a cleaning product for SILVANET[®] composite wood boards (applying lengthwise to the boards).

• Depending on the fence's exposure, the weather, humidity variations and temperature variations, composite wood railing boards can suffer 'warping'. We can accept a warping tolerance of 10 mm per linear metre.

METAL COMPONENTS

• These components comprise aluminium or stainless steel alloys. If you wish, they can be maintained with regular cleaning products. After washing, rinse thoroughly in clean water without any additives. Never use products like petrol, acetone, alcohol, alkaline or acid products, sanding sponges, sandpaper; any abrasive in general.

• We STRONGLY advise against applying any product containing acid and advise against use of any kind of solvent which could affect the paint.

STANDARDS

- The SILVADEC® railing was tested as per French standard NF P01-013 of August 1988, Eurocode 1991-1-1 of March 2003/ A1 of 2009 and French National Annex NF P06-111-2/A1 of March 2009. It complies with their requirements.
- This product is EXCLUSIVELY reserved for residential applications (see class A and B under Eurocode 1991-1-1 of March 2003).

STORAGE AND HANDLING

• We advise users to store railing components in their original packaging, protected from UV and bad weather exposure.

- Furthermore, we will not be held liable for any damage to a product that has not been kept in its original packaging.
- FOREXIA® composite wood boards must be stacked on a dry, flat surface, in a well ventilated place, so that they do not suffer any deformation.

Forexia® composite wood is not a so-called conventional product. Please inform your insurance company.

The colour of the Forexia® composite wood boards changes during the first few weeks after installation. Therefore, when ordering an additional railing, a slight colour difference may be noted compared to the existing installation. This will fade over time. Nevertheless, differences in colour may persist between one railing and another, or between different batches, since the wood we use in our production comes from various sources. Similarly, the colours and the finishing of the samples we provide are not contractually binding.

Railing boards are guaranteed for 25 years against attacks by termites and fungi. This guarantee is limited to the supply of replacement boards.