



# TECHNICAL FILE

EVO  
Floor fixing guardrail  
EN ISO 14122-3



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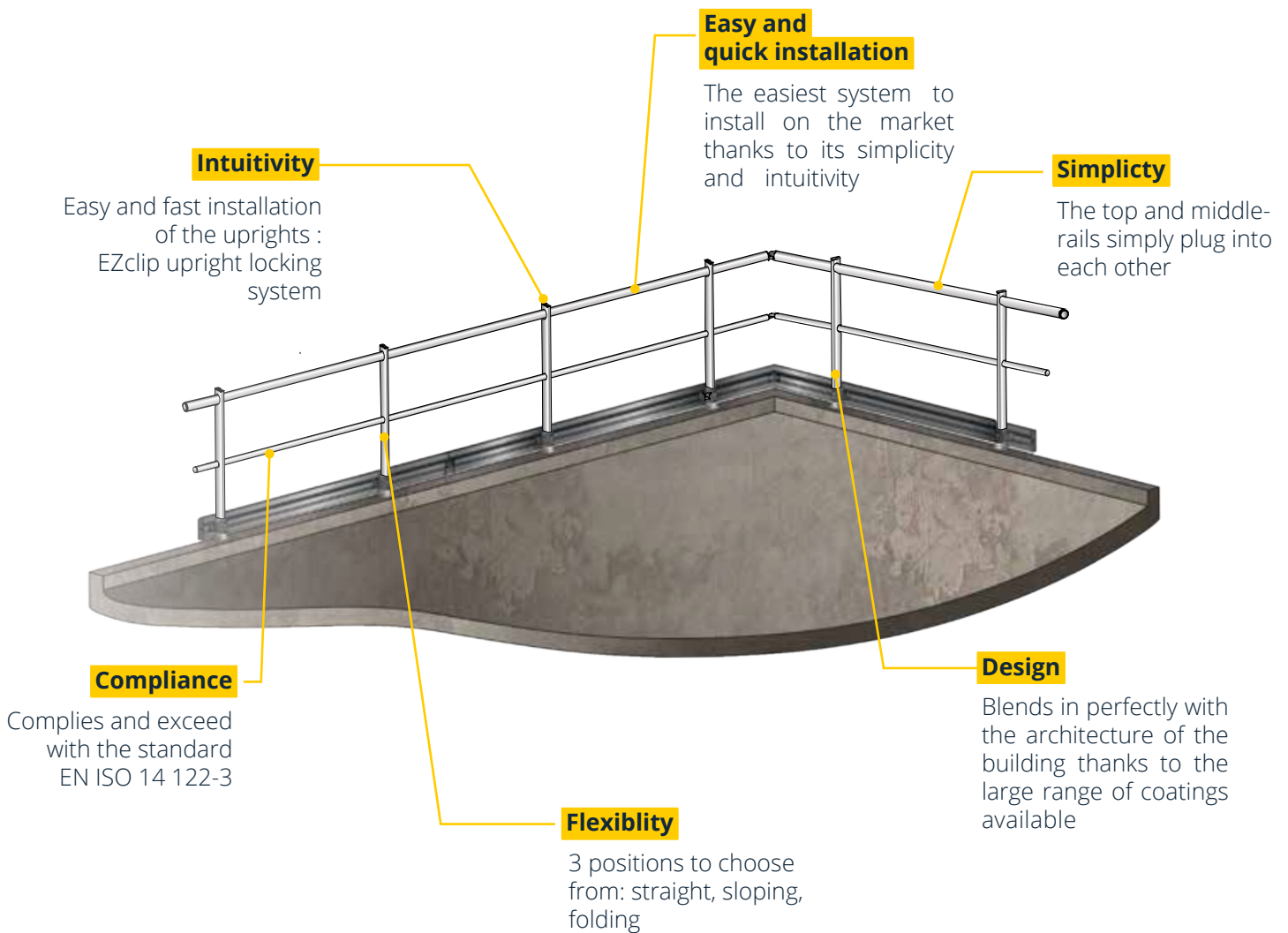
## Floor fixing guardrail

**EVO**

### PRÉSENTATION PRODUIT

The EVO® floor fixing guardrail is a collective fall protection system designed to protect roof terraces not accessible to the public.

The EVO® floor fixing guardrail is fixed flat (French fixing) on a metal structure, parapet or slab without sealing. Flat fixing remains the most economical solution for securing a flat roof.





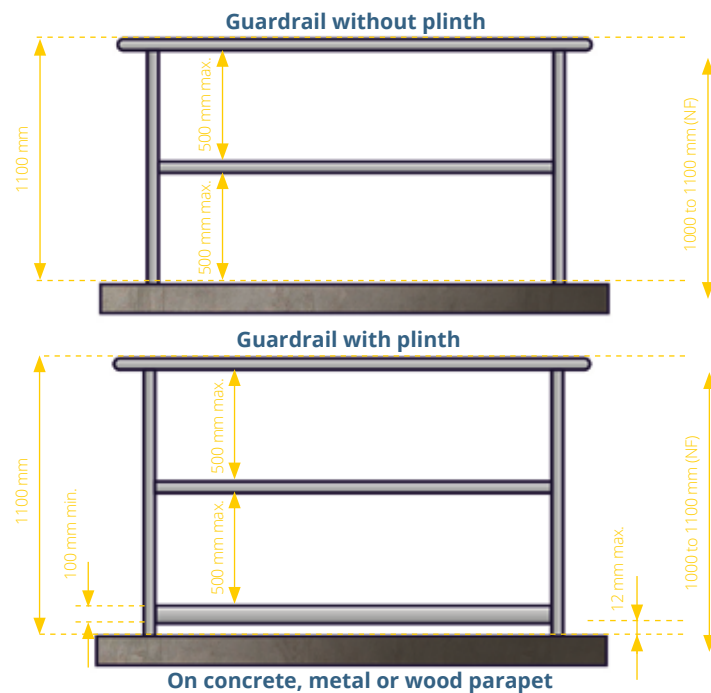
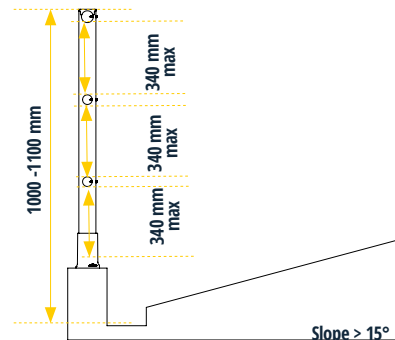
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## Floor fixing guardrail

**EVO**

### NORMES

- A guardrail must be installed as soon as the possible height of fall is higher than 500 mm.
- The guardrail handrail height must be comprising between 1000 and 1100 mm above the walking area.
- The distance between the handrail and kneerail, as well as between the kneerail and the toeboard must be less than or equal to 500 mm.
- This space shall be reduced to a maximum of 340mm between the rail and the middlerail and between the middlerail and the toeboard, when the guardrail is installed at the bottom of a slope greater than 15°.



NF: French standard NF E85-015 / EN: European standard EN ISO 14122-3

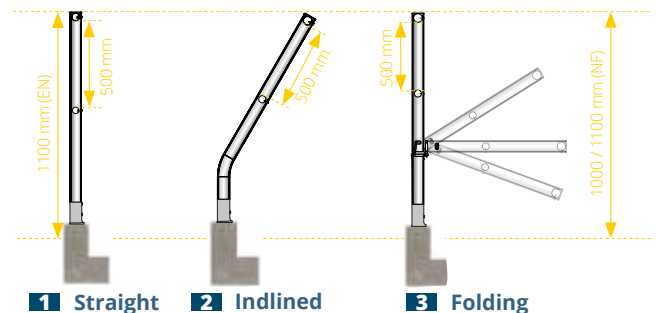
- A toeboard of minimum 100 mm height must be installed at 12 mm maximum from the walking area and the side of the platform
- The distance between the uprights must be limited to 1500mm maxi. However, if This distance is greater, particular attention should be paid to the strenght of the anchoring of the uprights and the fixing devices: consult our design office

- If the handrail is interrupted, the free space between two segments of the handrail should be between 75 mm and 120 mm. If there is a larger opening, a gate to ensure the continuity of the fall protection of the guardrail must be installed.
- Foldable: A lifeline must be installed before the foldable guardrail is mounted. This will also be used during installation and handling.

### REGULATION

The EVO® floor fixing guardrail complies with the standard EN ISO 14122-3 of March 2017, machines safety - permanent access means to machines – part 3: staircases, step ladders, guardrails – Permanent means of access.

### UPRIGHT DIMENSIONS



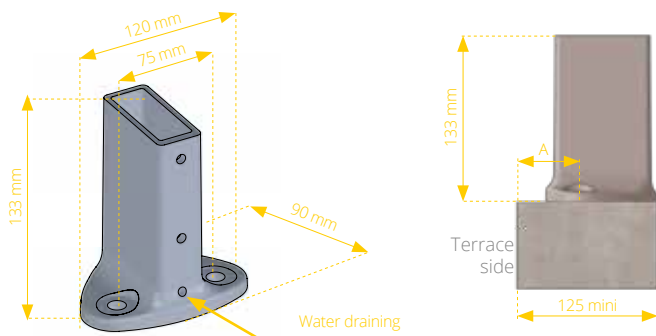


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## Floor fixing guardrail

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### FIXING BRACKET DIMENSIONS



### ADJUSTMENT BLOCKS

Supplied on request, they ensure the correct verticality of the upright when installed on an uneven surface.



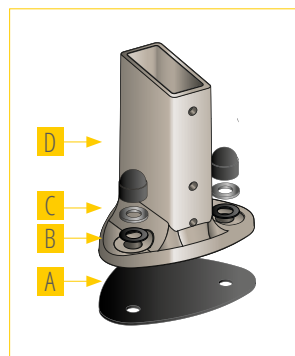
### WATERPROOFING KIT

The waterproofing kit for EVO flat or French guardrails is composed of rubber seals and washers.

Combined with a chemical sealant (not supplied), it ensures a watertight seal and prevents infiltration into the concrete support.

### Kit components

- A** 1 x rubber seal cut to the shape of the base to be placed between the base and its support
- B** 2 x rubber washers
- C** 2 x large washers M10
- D** 2 x nut caps H M10



### TECHNICAL FEATURES

- Material: aluminium
- Finish: raw or powder coated (ral colours) on request
- Fixings: 2 M10 bolts
- Round rail Ø45 and round kneerail Ø35
- Available in the following versions: straight, inclined & folding
- Compliance : European Standard EN ISO 14122-3 March 2017

### INSTALLATION INSTRUCTIONS

- Maximum distance between uprights: 1500 mm
- Angles of rail and kneerails to plug into each other
- Rail and kneerails to plug into each other thanks to their swaged ends
- Installation with HC screws and self-drilling screws supplied
- Minimum fixing distance from the edge of the parapet: 60mm
- Minimum width of the parapet: 125mm
- Parapet height ≤ 100 mm = toeboard is mandatory
- If folding uprights are used, a Delta Plus Systems lifeline is mandatory to secure the workers' movements
- **IMPORTANT:** Before using the system, please refer to the relevant instructions



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## EVO

### USE & MAINTENANCE INSTRUCTIONS

- The person performing the installation of EVO® guardrail must be a qualified person and must observe the common rules on working at heights. It must thus ensure his own security (use of a temporary lifeline, PPE, aerial lift, etc)
- Before any use, user must ensure by visual inspection that EVO® guardrail shows no anomaly (shock, distortion, etc.)
- The EVO® guardrail does not require any particular maintenance, however, a visual inspection must be carried out at least once a year by a qualified person
- If the guardrail EVO® is improperly installed, damaged or has been used to arrest a fall, its use must be stopped immediately and it must not be used until a qualified person has authorized in writing its reuse after examination and verification
- If the product is sold outside the first country of destination, it is essential for the safety of the user that the reseller provides the instructions of use in the language of the country of the product use. These documents can be provided upon request by contacting the manufacturer
- EVO® guardrail is a mean of permanent collective protection which must be used by professionals on flat roofs not accessible to the public
- The use of a EVO® toeboard is mandatory if the terrace does not have any-parapet or if it is less than 100 mm height

- If EVO® guardrail is installed in a polluted industrial environment, petrochemical, maritime or on seaside, it is compulsory to make a surface treatment appropriated type powder coating, anodizing, etc
- If you have been provided with a layout plan, please refer to it during installation
- If there is no layout plan, please observe the 1,500 mm centre-to-centre distance between each upright and the position of the uprights in relation to the corners of the roofs
- To ensure the conformity of the installation, it must be carried out according to a layout plan made by our configurator or by our design office
- Each section must be composed of a minimum of 3 uprights

### STORAGE

Raw aluminum components are packaged in contact with each other. The action of the rain on the unopened package will facilitate the oxidation of these components. Surface stains may occur. They do not degrade the quality of aluminum but can spoil the appearance of the railings.

We recommend you to unpack the package and to store the components separated from each other (no contact between them), or to store the packages still packed in a dry place.

### CHOICE OF FIXINGS\* ON CONCRETE SUPPORT

2 bolts M10 on non-cracked concrete parapet C20/25.

Distance parapet edge	Solution	Zinc model	A4 stainless steel model
A ≥ 50 mm	<b>Chemical</b>	HIT-HY 200-A 330/2 injection mortar with HAS-U 5.8 M10x115 with anchor bolt	HIT-HY 200-A 330/2 injection mortar with HAS-U 5.8 M10x115 with anchor bolt
A ≥ 60 mm	<b>Mechanical</b>	HST3-R M10x90 30/10 male dowel	HST3-R M10x90 30/10 male dowel
A ≥ 75 mm	<b>Mechanical</b>	HST3-R M10x90 30/10 male dowel	HST3-R M10x90 30/10 male dowel

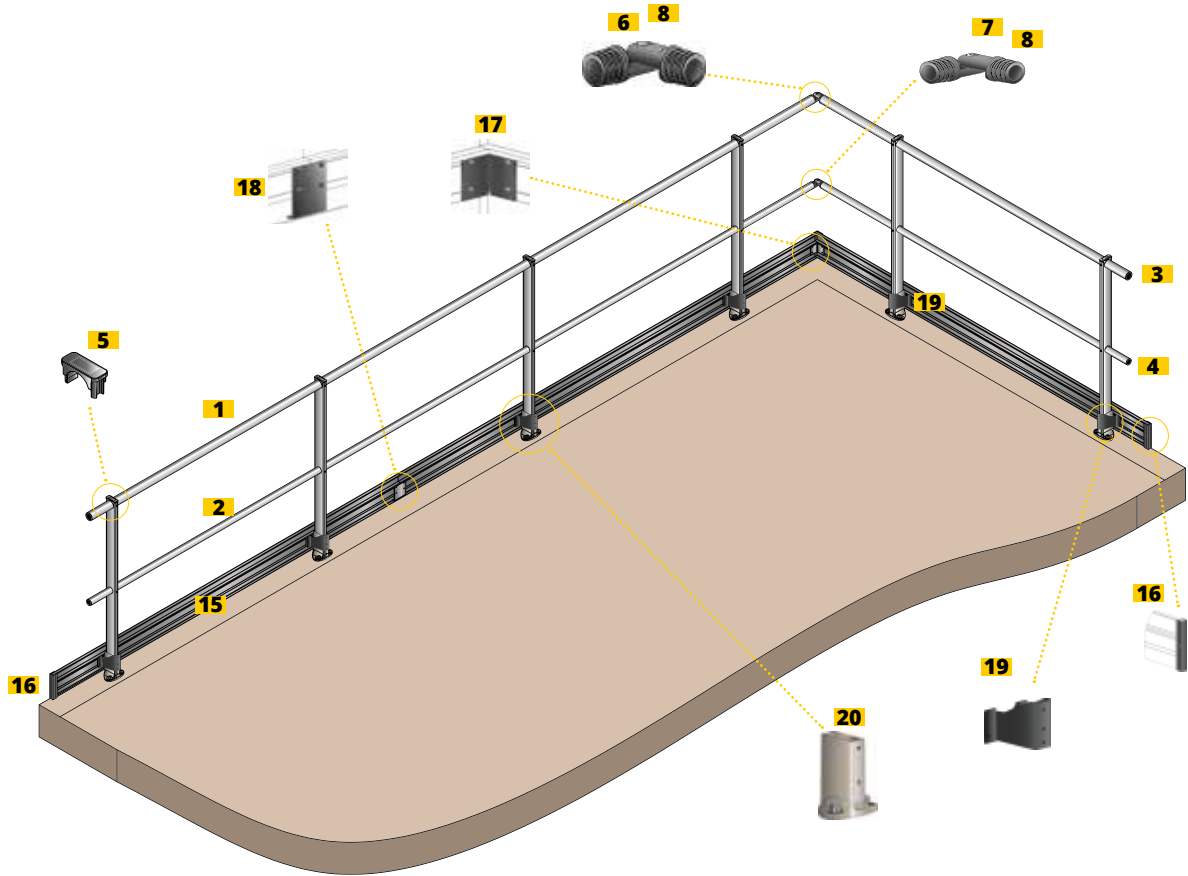
Table given as a reference for concrete C20/25. Hilti \*fixings (supplied upon request)



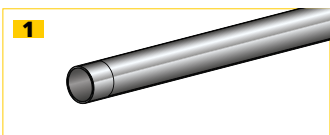
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## Floor fixing guardrail

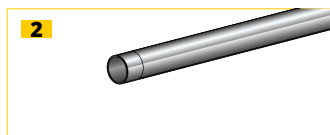
**EVO**



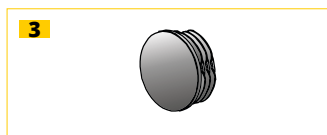
### GENERAL COMPONENTS



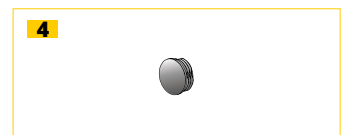
**1**  
Shrunken rail Ø45 mm  
WV830450  
Lenght 3000 mm



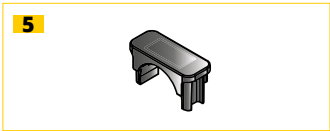
**2**  
Shrunken middle-rail Ø35 mm  
WV830350  
Lenght 3000 mm



**3**  
Rail cap Ø45 mm  
WV830451



**4**  
Middle-rail cap Ø35 mm  
WV830351



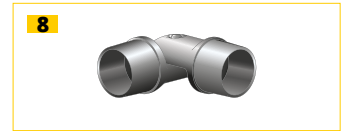
**5**  
EZclip plastic cap  
WV820000



**6**  
Rail angle Ø45 mm  
WV830450



**7**  
Middle-rail angle Ø35 mm  
WV830352



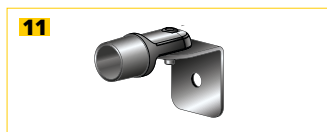
**8**  
Aluminium middle-rail angle Ø35  
an 45 mm - WV830453



**9**  
Wall fixing bracket for rail Ø45  
mm - WV830454



**10**  
Wall fixing bracket for middle-rail  
Ø35 mm  
WV830354



**11**  
Wall fixing aluminium bracket for  
rail and middle-rail  
WV830455



**12**  
Straight upright  
H : 1105 and 1182 mm



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**13**  
Folding upright  
H : 1105 - aluminium joint  
WV8201105F



**14**  
Folding upright  
H : 1010 - aluminium joint  
WV8201010F



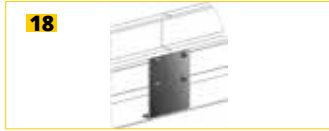
**15**  
Toeboard  
L : 3000 x 150 x 9 mm  
WV840000



**16**  
Cap for toeboard  
H : 150 mm  
WV840001



**17**  
Angle kits for toeboard (interior/  
exterior)  
H : 150 mm  
WV840003



**18**  
Toeboard straight connector  
H : 150 mm  
WV840005



**19**  
Toeboard bracket support for  
floor fixing guardrail  
WV841001

## COMPONENTS: FIXING BRACKETS



**20**  
Fixing floor bracket  
WV811001

## COMPONENTS: FIXINGS



**21**  
Stainless steel self-drilling  
screw 4.8x16 TH- ZOSYSBVHF48016



**22**  
Stainless steel self-drilling  
screw 4.8x25 TH- ZOSYSBVHF48025



**23**  
TH tip  
For guardrail installation



**24**  
STHC screw M08x10i DINI913  
WV844001

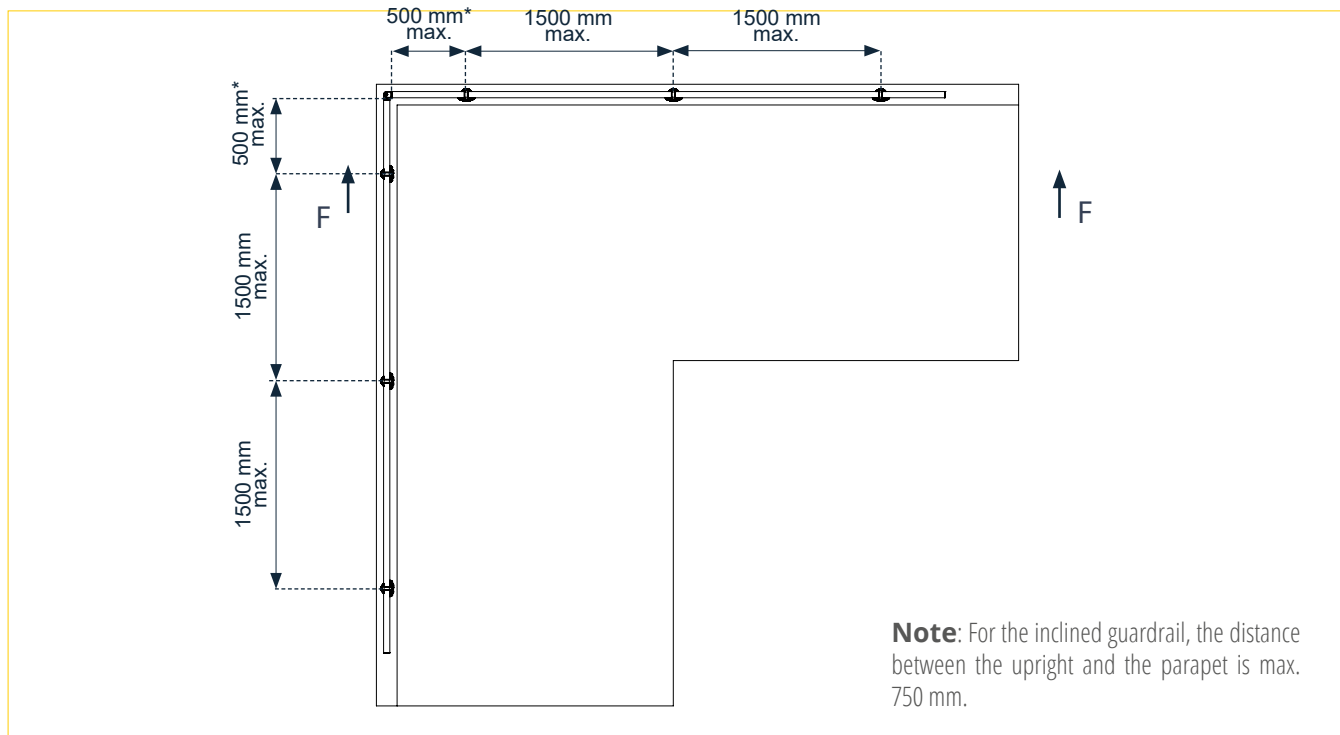


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## Floor fixing guardrail

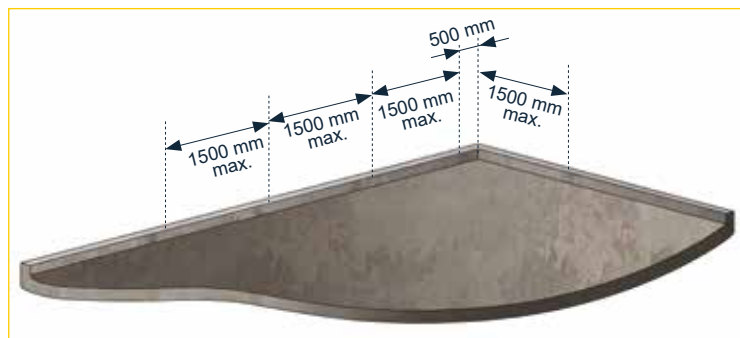
**EVO**

### IMPLEMENTATION

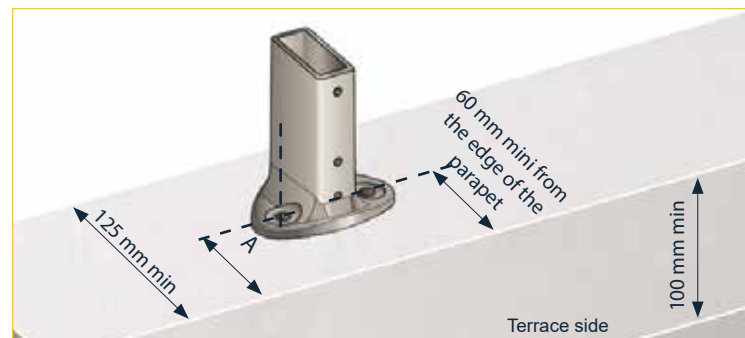


### INSTALLATION

The installation of EVO® floor fixing guardrail must be done by a minimum of two people. It is recommended to start installation in an angle.



1 - Draw a mark each 1500 mm as a maximum



2 - Follow the recommendations to fix the base at a minimum distance from the edge of the parapet



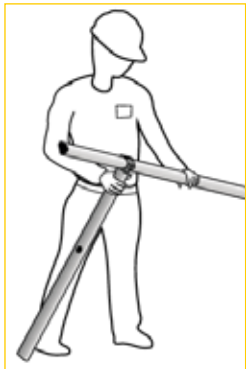


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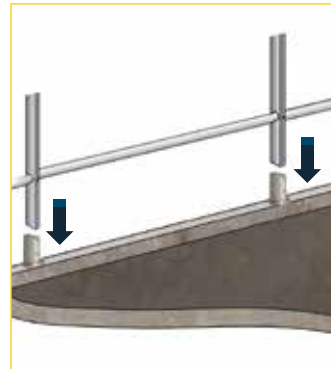
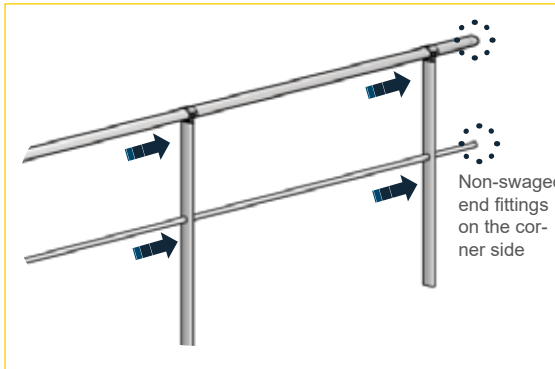
## Floor fixing guardrail

**EVO**

### INSTALLATION



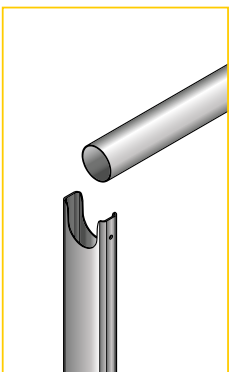
3 - Insert a middlerail through 2 uprights



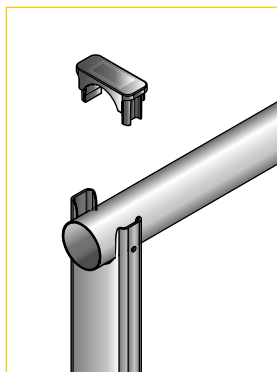
4 - Insert the set into the parapet brackets



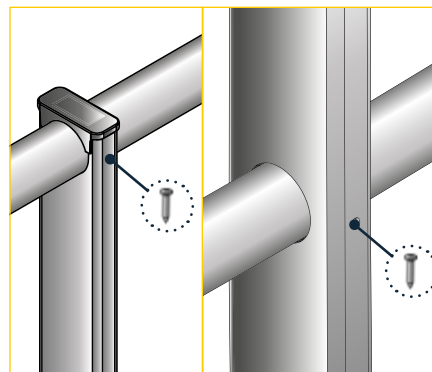
5 - Tighten STHC screws



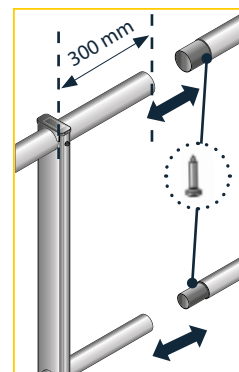
6 - Put the rail on the uprights



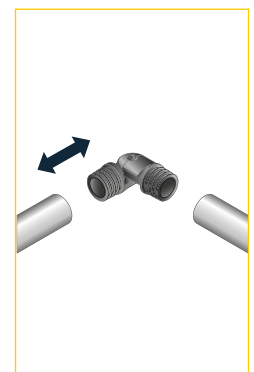
7 - Clip EZclip to the top of the upright



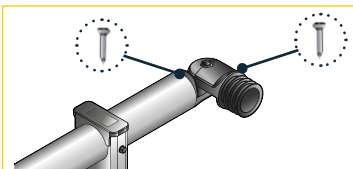
7 - Tighten self-drilling screws 4,8 x 25 on upright, where rail and middlerail are positioned



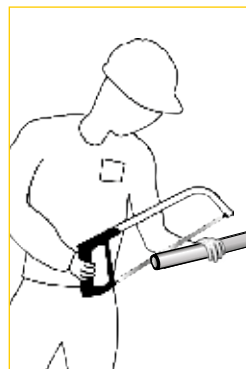
8 - Plug together rails and middlerails, and fix them with 4,8x16 screws



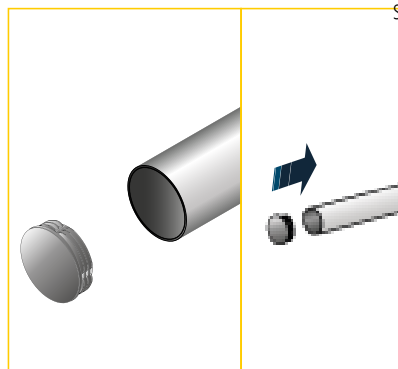
9 - Clip rail and middle-rail angles



10 - Tighten angles with self-drilling 4.8x 25 screws



11 - Adjust the last section by sawing off extra



12 - Clip caps and wall brackets to rails and middlerails

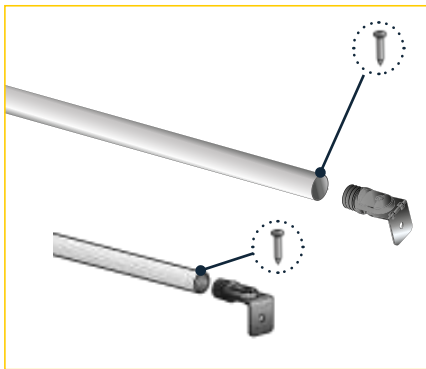


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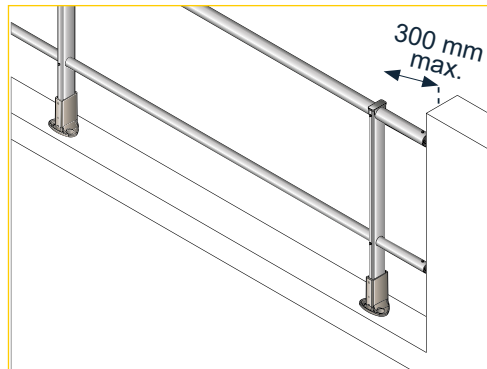
## Floor fixing guardrail

**EVO**

### INSTALLATION: WALL BRACKETS

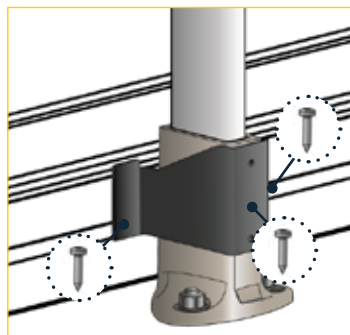


1 - Fix wall brackets using self-drilling 4.8 x 25 screws

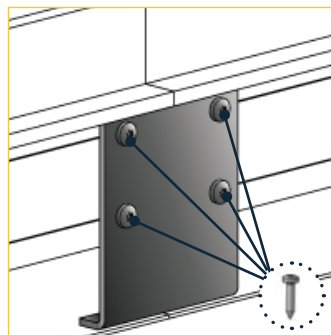


2 - The maximum distance of 300 mm between the upright and the wall must be observed

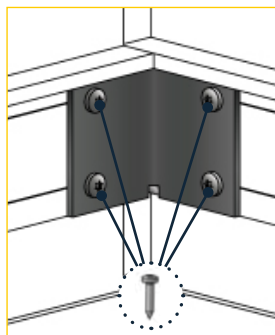
### INSTALLATION: TOEBOARD



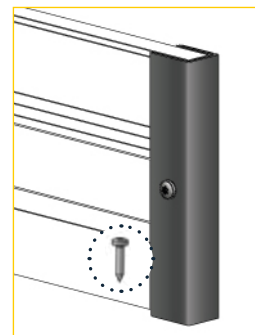
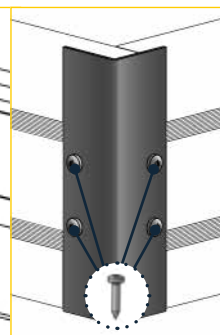
1 - Remove the M8x10 socket screws pre-mounted on the floor fixing bracket and place the toeboard support bracket on the base. Then fix it with 2 selfdrilling screws 4.8 x 25. Finally, fix the toeboard to the support with 2 other selfdrilling screws 4.8 x 16 (1 on each side of the support).



2 - Attach the toeboard lengths between them through the toeboard connectors and 4 selfdrilling screws TH 4.8 x 16



3 - For angles, secure the inner and external connectors with 8 self-drilling screws T25 4.8 x 16



4 - Finally, fix the toeboard plugs with one self-drilling screw T25 4.8 x 16