



FOLDING GUARDRAILS SYSTEM

STANDARD

EN ISO 14122-3

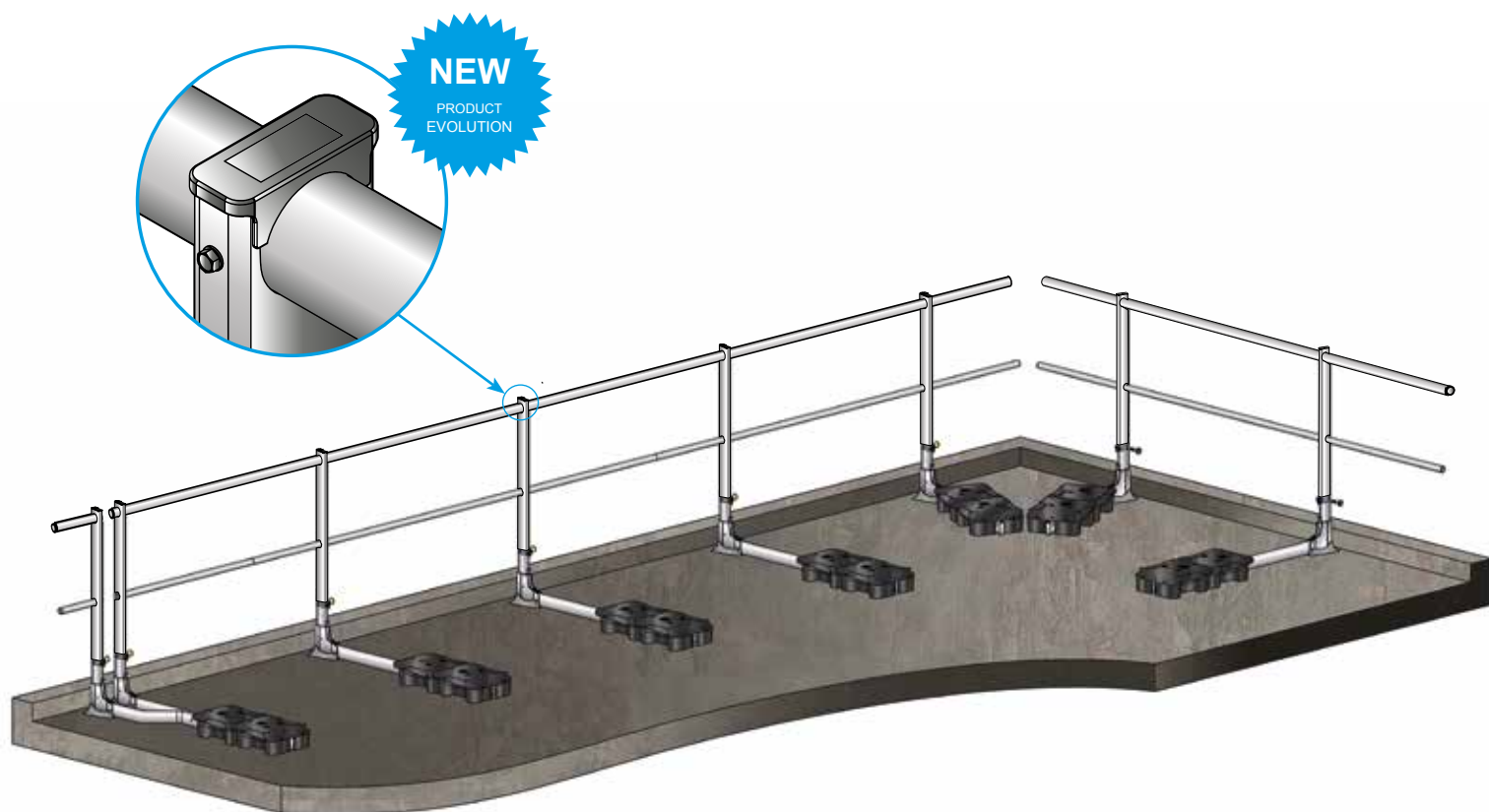




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FOLDING GUARDRAILS SYSTEM

DEFINITION

The VECTACO® folding guardrail system can be installed on our entire range of collective protection: VS, VA, VAD, VZ, VDE, VDS, VBE, VBA and VAP. It preserves the aesthetics of a building by bending down to disappear from the exterior view of the building. This module can be folded by a single person up to 12 m and can thus ensure a quick safety procedure of the roof during interventions.



The locking system with spring handle allows articulating the guardrail in 3 positions :

- **Position folded**, when no worker is working on the roof (hides the guardrail of the external view of the building);
- **Intermediate position** «type demarcation» makes more visible the area to secure and reduces the risk of tripping during the trip. The guardrail remains invisible from the outside;
- **Straight position**, the guardrail guarantees the safety of the users. **WARNING** : During the operation, a VECTALINE® lifeline is mandatory to secure users' movements when the guardrails are in the folded position.

NEW

Upright/handrail connection system: the triangular handrail and T part are substituted by a round handrail and a plug at the top of the upright (delivered unassembled). This change leads to the following product modifications:

- New corner angles (plastic and ALU) for round handrail;
- New plug for round handrail;
- Uprights: notch at the top to receive the handrail + pre-drilled holes to facilitate the assembly of the handrail and knee-rail.



STANDARDS

VECTACO® folding system guardrail complies with the standard EN ISO 14122-3 of December 2007, machines safety - permanent access means to machines – part 3 : staircases, step ladders, guardrails and to the standard NF E 85-015 of April 2008, components of industrial installations – Permanent means of access.

VECTACO® folding system guardrail passed with success the static and dynamic tests required by the standards EN ISO 14122-3.

REFERENCES

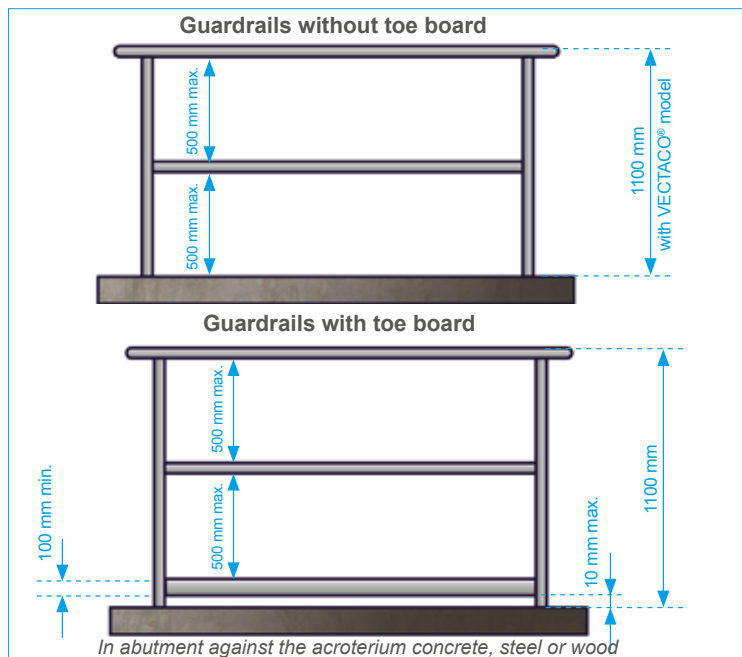
MODELS	Top fix	Wall fixture system	Standard Z-shaped support base	Offset wall fixture system	Roof slab to be sealed	Metal deck to be sealed	Metal deck to be sealed	Freestanding
Handrail	VS-R1	VA-R1	VAD-R1	VZ-R1	-	-	-	-
Handrail + Knee rail	VS-R2	VA-R2	VAD-R2	VZ-R2	VDE-R2	VBE-R2	VBA-R2	VAP-R2
Handrail + Knee rail + Toe board	VS-R3	-	-	-	VDE-R3	VBE-R3	VBA-R3	VAP-R3



FOLDING GUARDRAILS SYSTEM

STANDARDS REMINDER

- A guardrail must be installed as soon as the possible height of fall is higher than 500 mm.
- The guardrail handrail height must be equal to 1100 mm above the walking area.
- The distance between the handrail and middle rail, as well as between the middle rail and the toeboard must be less than or equal to 500 mm.

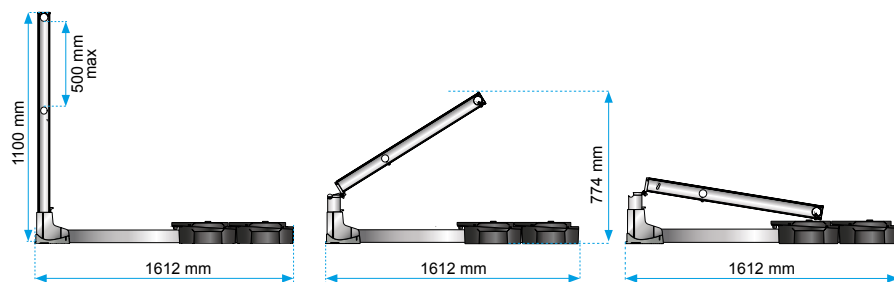


- A toeboard of a minimum of 100 mm height must be installed at a maximum of 10 mm from the walking area and the side of the platform.
- **WARNING** : the implementation of VECTACO® freestanding guardrail necessarily implies the existence of a stop end on the terrace roof. Otherwise, contact our design office.
- The distance between the uprights axles is limited to 1500 mm maxi. **WARNING** : Any installation of VECTACO® folding which does not respect a maximum center-to-center distance of 1500 mm will lead to non compliance.
- 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 more openness, a security gate must be installed to ensure the continuity of the fall protection of the guardrail.



SISTEMA ABBATTIBILE PER PARAPETTO

DIMENSIONS



ATTENTION : before use, please refer to the technical manuale



Prohibition to use the handles of the counterweight for lifting on the roof.

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 tasks may occur. They do not question the quality of aluminum but can degrade the appearance of the guardrails.

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.

USE - MAINTENANCE

- The person performing the installation of VECTACO® 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, EPI, aerial lift, etc).
- Before any use, the user must ensure by visual inspection that the guardrail VECTACO® shows no abnormality (shock, distortion, etc.).
- VECTACO® guardrail does not need any particular maintenance; however a visual check must be done at least once a year by a qualified person.

- If the guardrail VECTACO® 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.
- VECTACO® 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 VECTACO® toeboard is compulsory if the terrace does not have any parapet or if it is less than 100 mm height.
- If the VECTACO® 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.
- Each section must be composed of a minimum of 2 uprights.
- To guarantee the conformity of the installation, it must be realised according to a layout plan drawn up by our configurator or by our design office.



FOLDING GUARDRAILS SYSTEM

PRINCIPLE OF OPERATION

Warning : During the operation, a VECTALINE® lifeline is mandatory to secure users' movements when the guardrails are in the folded or intermediate positions.

Safety procedure of the guardrails :



1. Pick up the frames.



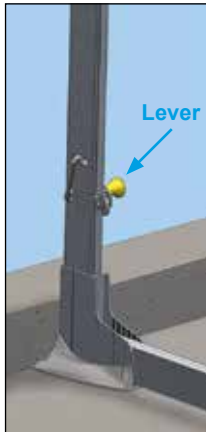
2. Push the handle using the ball.



3. Raise the handle at the oblong slot in the upright.



4. Engage the knob in the housing by releasing the handle (the housing is equipped with locking notches), to completely lock the upright, then push the knob outward to the last notch. The system is then fully locked.



Guardrail set in folded position :

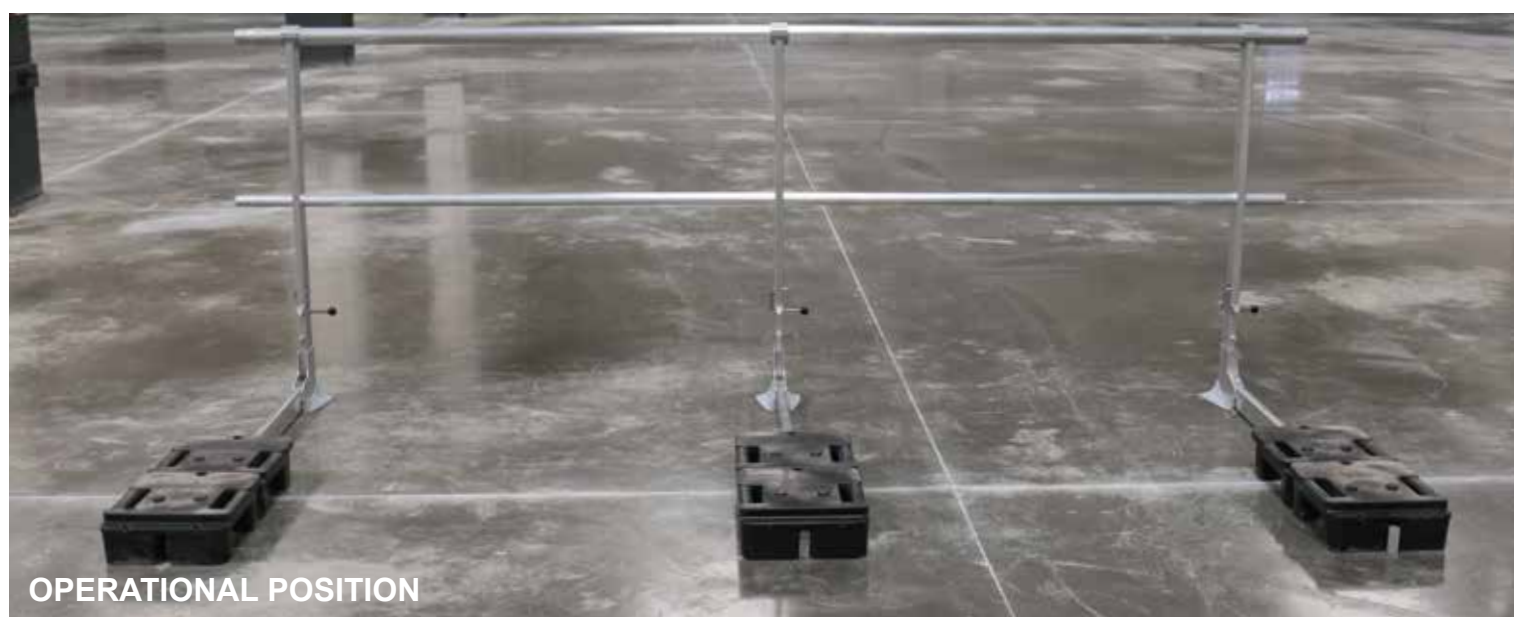
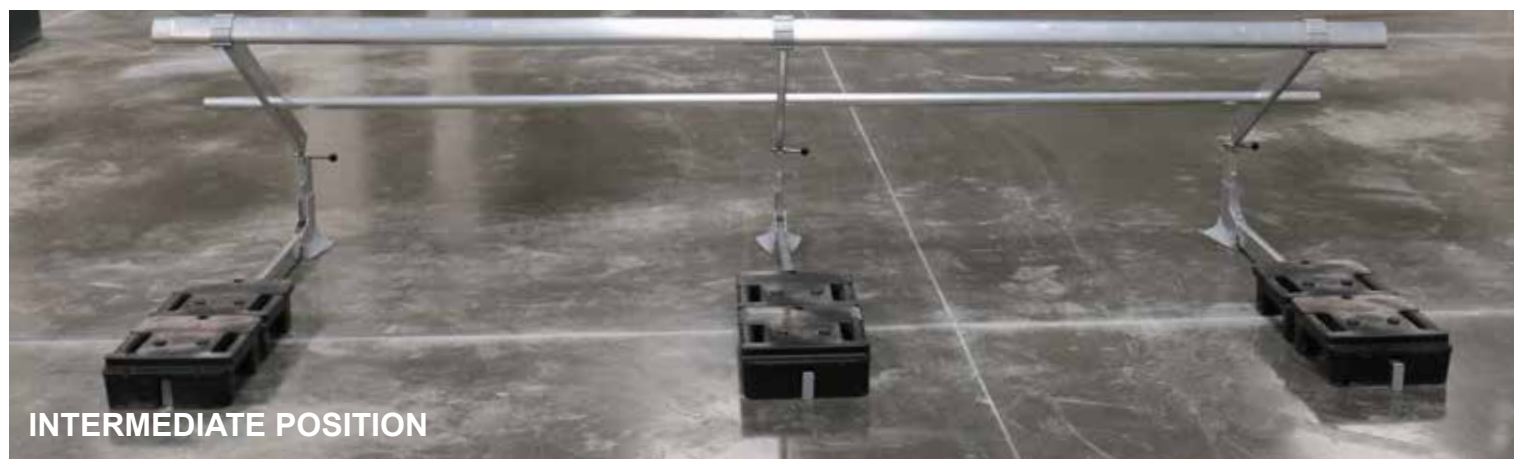
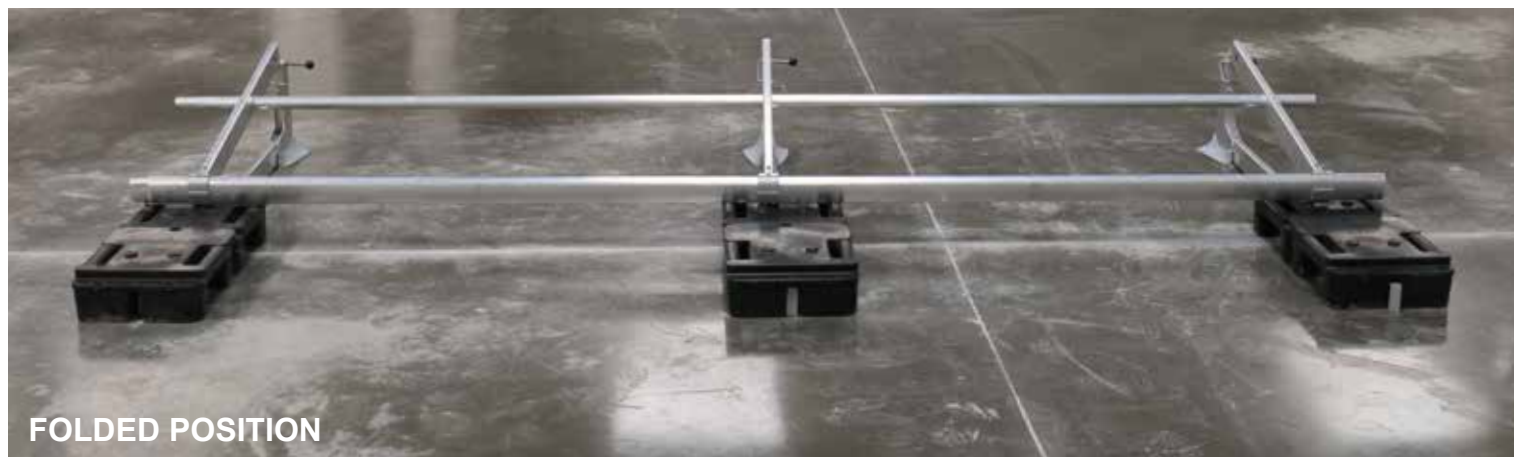
To fold down the guardrail, proceed to unlock the system, contrary to the principle of safety described above.

Guardrail set in intermediate position :

Position the free part of the handle between the upright and the pivot axis of the 2 joints. Fold down the frames until the upright come into abutment against the handle thus preventing the total lowering of the guardrail.



FOLDING GUARDRAILS SYSTEM

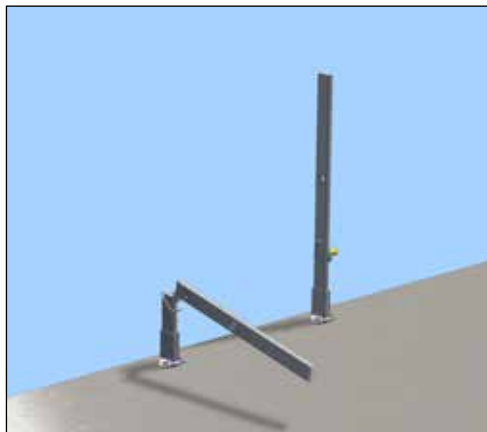




DIFFERENTS MODELS OF RAILLING WITH FLORDING SYSTEM

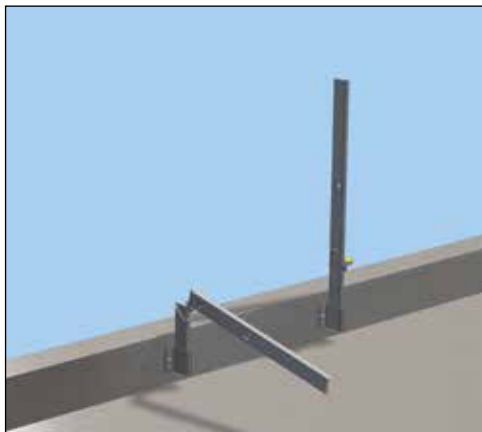
Folding system for top fix guardrail

Ref.: VS-R1 / VS-R2 / VS-R3



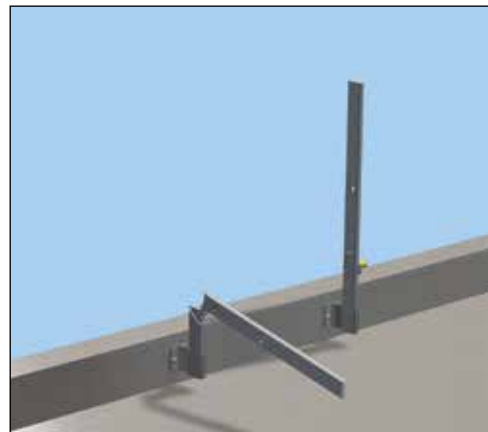
Folding system for guardrail with wall fixture system

Ref.: VA-R1 / VA-R2

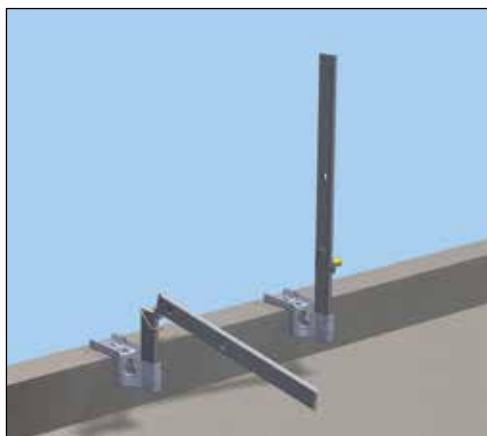


Folding system for guardrail with offset wall fixture system

Ref.: VAD-R1 / VAD-R2

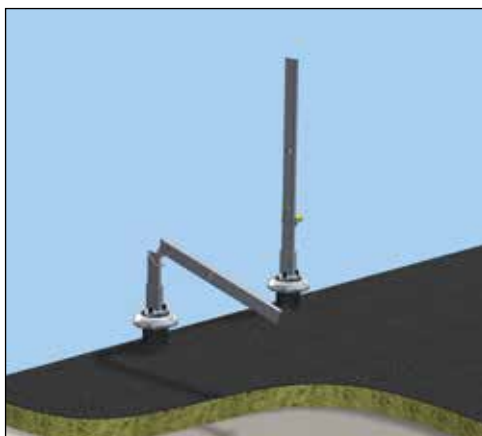


Folding system for guardrail under covering fixture system with standard Z-shaped support - Ref.: VZ-R1 / VZ-R2



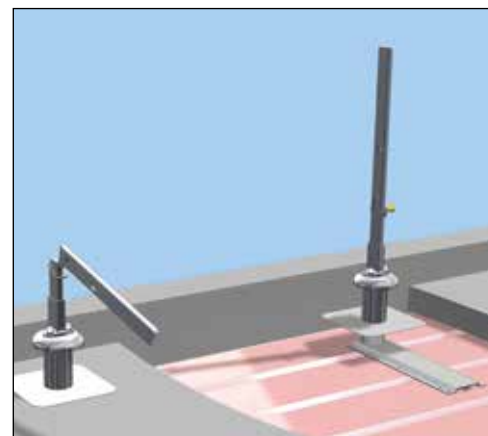
Folding system for guardrail on roof slab to be sealed

Ref.: VDE-R2 / VDE-R3



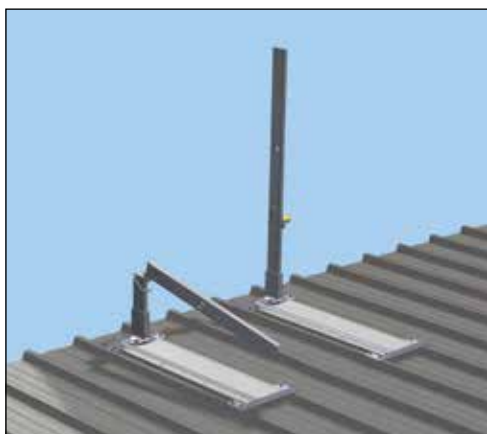
Folding system for guardrail fixed on metal deck roofs to be sealed

Ref.: VBE-R2 / VBE-R3



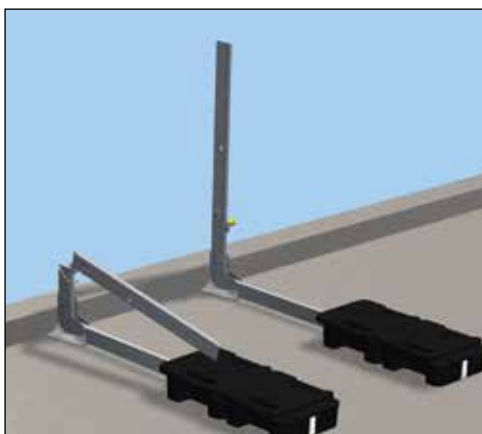
Folding system for guardrail fixed on metal deck

Ref.: VBA-R2 / VBA-R3



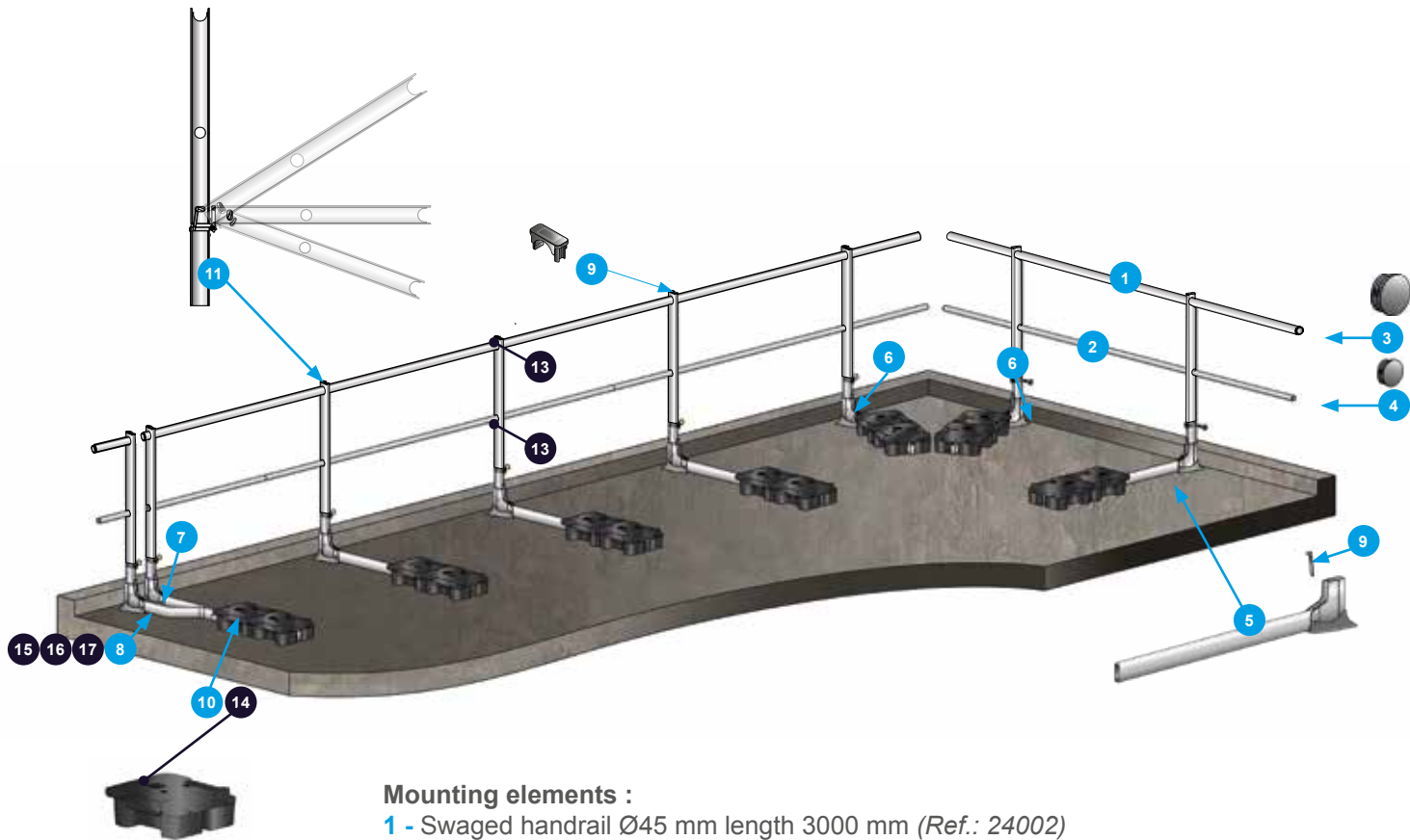
Folding system for freestanding guardrails

Ref.: VAP-R2 / VAP-R3





FOLDING GUARDRAILS SYSTEM



Mounting elements :

- 1 - Swaged handrail Ø45 mm length 3000 mm (Ref.: 24002)
- 2 - Swaged knee rail length 3000 mm (Ref.: 03931)
- 3 - Handrail plug Ø45 mm (Ref.: 24000)
- 4 - Plug for knee rail Ø35 mm (Ref.: 09625)
- 5 - Self-supporting base with mechanically welded support leg (Ref.: 04763)
- 6 - Straight self-supporting base with 25° curved support leg left-side length 878 mm (Ref.: 07810) or Straight self-supporting base with 25° curved support leg right-side length 878 mm (Ref.: 07809)
- 7 - Base with drilled folding support leg (Ref.: 07811)
- 8 - Right straight base with folding curved strut (Ref.: 07807) or Left straight base with folding curved strut (Ref.: 07808)
- 9 - Blocking wedge (Ref.: 04773)
- 10 - Plastic counterweight 12.5 Kg (Ref.: 03468)
- 11 - Straight upright H 1105 mm notch Ø45 mm (Ref.: 24011)
- 12 - Plug 68x28 mm notch Ø45 mm (Ref.: 23329)

Screws :

- 13- TH stainless steel prefix 4.8 x 25 self-drilling screw (Ref.: 300265)
- 14- TH stainless steel prefix 4.8 x 50 self-drilling screw (Ref.: 300363)

Fasteners for Z-shaped support leg mounting with drilled support leg :

- 15 - TH 08 x 70 stainless steel screw (Ref.: DIN9330870)
- 16 - M08 stainless steel nut with toothed baseplate (Ref.: DIN16923M08)
- 17 - Stainless steel washer M08 (Ref.: DIN125M08)

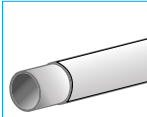


NOMENCLATURE

NOMENCLATURE FOR VECTACO® FREESTANDING FOLDING GUARDRAIL

Swaged end
handrail
Ø45 mm
L: 3000 mm

Ref.: 24002



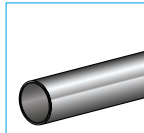
Knee rail Ø35
mm with narrow
end section
L: 3000 mm

Ref.: 03931



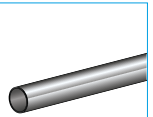
Handrail without
end shrinking
Ø45 mm
L: 3000 mm

Ref.: 24001



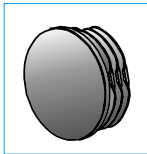
Knee-rail wit-
hout end shrin-
king Ø35 mm
L: 3000 mm

Ref.: 03929



Handrail plug

Ref.: 24000



Knee rail plug
Ø35 mm

Ref.: 09625



Plug
notch Ø35 mm

Ref.: 23329



Blocking
wedge

Ref.: 04773



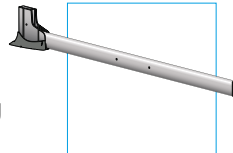
Base with
mechanically
welded support
leg

Ref.: 04763



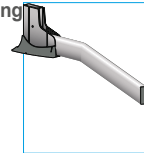
Base with
drilled
folding
support leg

Ref.: 07811



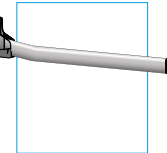
Straight self-supporting
base with 25° curved
support leg left-side
length 878 mm

Ref.: 07810



Straight self-suppor-
ting base with
25° curved support
leg right-side length
878 mm

Ref.: 07809



According to parapet height :

- Folding upright notch
Ø45 mm

H : 1010 mm

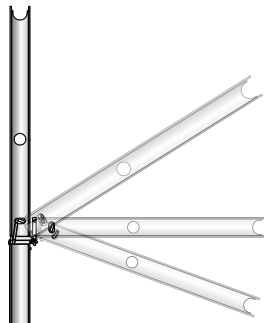
Ref.: 24010

- Folding upright notch
Ø45 mm

H : 1105 mm

Ref.: 24011

- or custom-made



Counterweight
12.5 kg

Ref.: 03468



TH stainless
steel perfix 4.8
x 25 self-drilling
screw

Ref.: 300265



TH stainless
steel perfix 4.8
x 50 self-drilling
screw

Ref.: 300363



TH 08 x 70
stainless steel
screw

Ref.: DINI9330870



M08 stainless
steel nut with
serrated base

Ref.: DINI6923M08



Stainless steel
washer M08

Ref.: DINI125M08

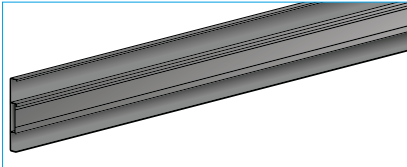




NOMENCLATURE

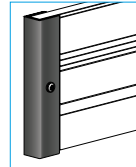
NOMENCLATURE FOR TOE BOARD (HEIGHT 150 MM)

Toe board length
3000 x 150 x 19 mm



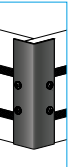
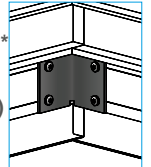
Ref.: 08702

Toe board
plug
H 150 mm*



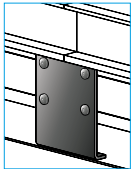
Ref.: 08738

Toe board corner
connector kit H 150 mm*
(including inside and
outside corner angles)



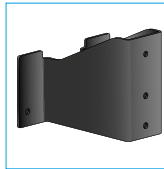
Ref.: 08869

Toe board
straight
connector
H 150 mm*



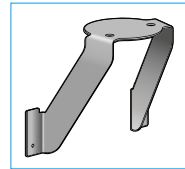
Ref.: 08637

Mounting bracket
for toe board for top
fix guardrail and for
guardrail on metal
deck*



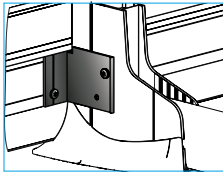
Ref.: 09508

Mounting bracket for
toe board for guardrail
with D-post and for
guardrail with BE-post*



Ref.: 09509

Mounting bracket
for toe board
for freestanding
guardrail*



Ref.: 08703

TH stainless
steel perfix 4.8
x 16 self-drilling
screw



Ref.: 300472

TH stainless
steel perfix 4.8
x 32 self-drilling
screw



Ref.: 300484

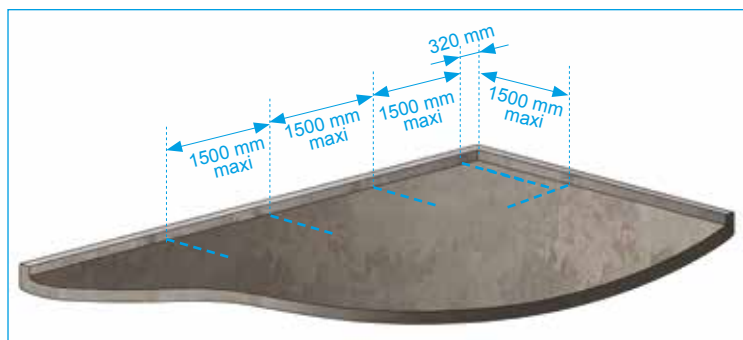
* Screws/bolts not included

MOUNTING EXAMPLE : FREESTANDING VERSION

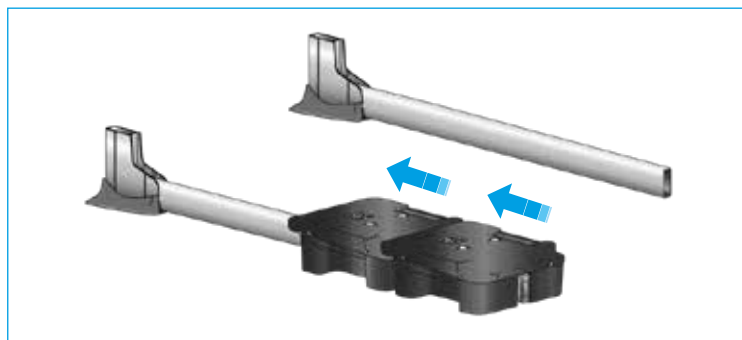
VECTACO® FREESTANDING GUARDRAIL ASSEMBLY

VECTACO® folding guardrail consists of 6 m successive frames or more (refer to the layout plan supplied with the order) and requires at least two people to install it. The layout plan we provide must be followed.

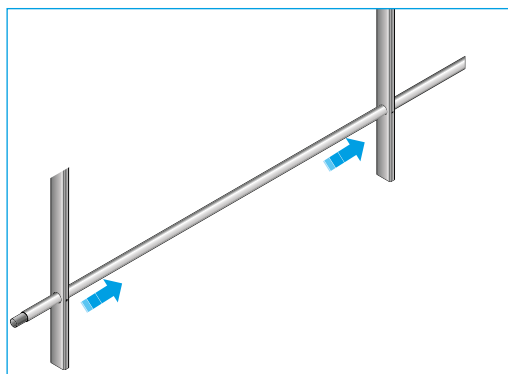
WARNING : when installing and handling the folding guardrail, a VECTALINE® lifeline is mandatory to secure the users' movements.



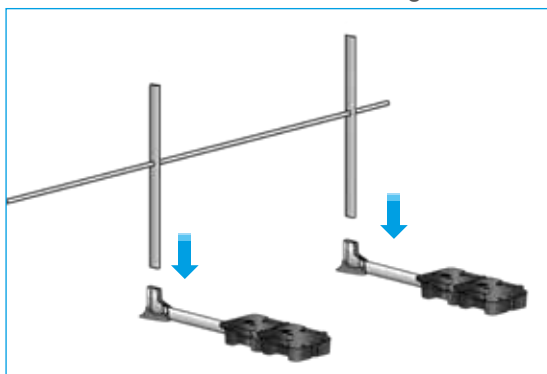
1 - Draw a mark each 1500 mm as a maximum and take out the gravel if necessary in order to set up the guardrail.



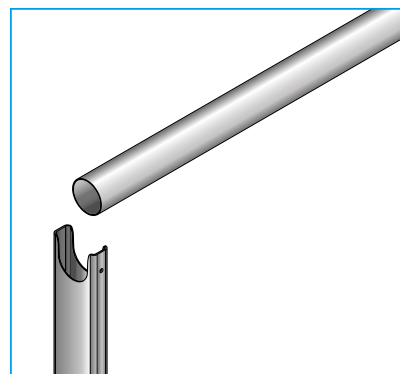
2 - Place the support leg in the self-supporting base and place the plastic counterweights on the support legs. The tube of the support leg must be flush with the surface of the plastic counterweight.



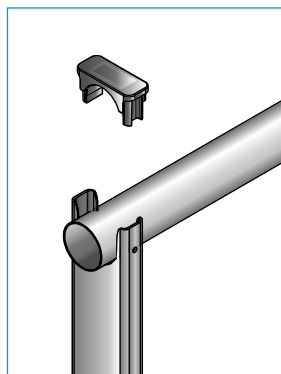
3 - Insert a knee rail in 2 uprights.



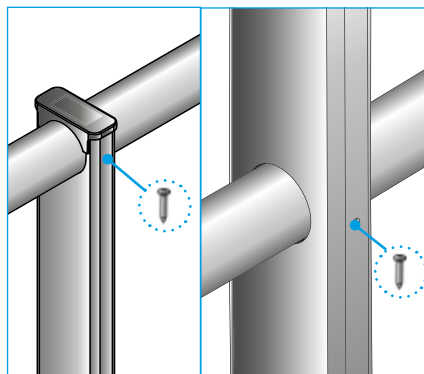
4 - Place the parts in the bases.



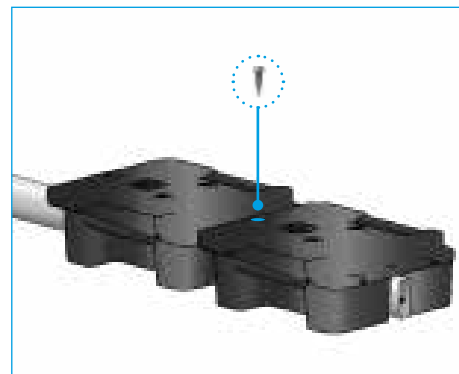
5 - Place the handrail on the uprights



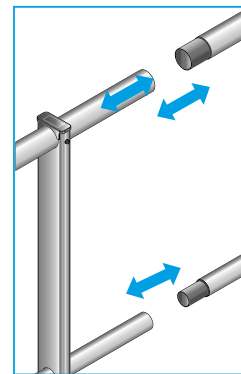
6 - Clip on the upper part of the upright.



7 - Tighten self-drilling screws 4,8 x 25 on upright to the level of handrail and knee rail.

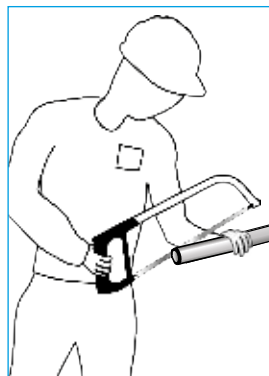


8 - Once the guardrail is mounted, tighten the self-drilling screws 4.8 x 50 as stated above.

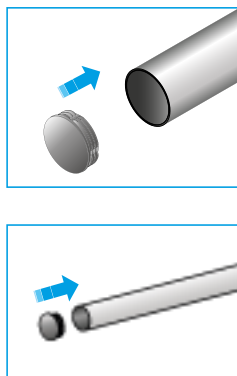


9 - Assemble the handrails and knee rails of the installed sections.

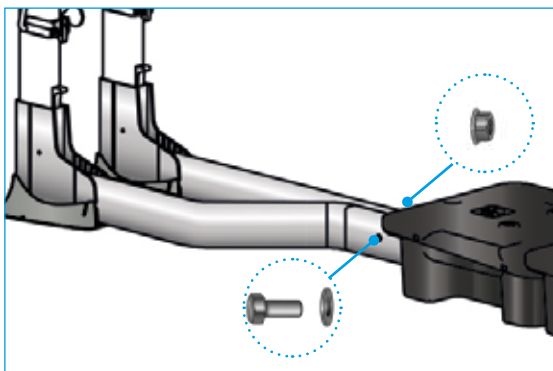
FOLDING GUARDRAILS SYSTEM



10 - Adjust the last section sawing the surplus.

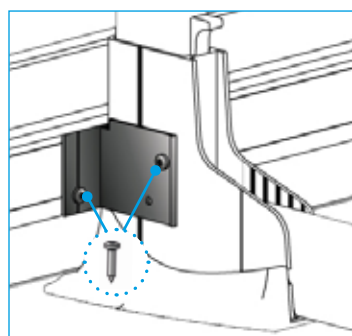


11 - Insert the corners angles of handrails and knee rails.

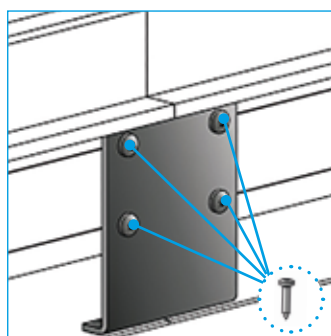


12 - Fix the drilled support leg with the Z-shaped right-angled support leg (right or left depending on the configuration) using the stainless steel screw TH 08 x 70, the stainless steel nut M08 with toothed baseplate and the M08 stainless steel washer.

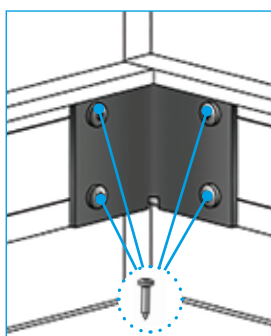
TOE BOARD FIXATION FOR VAP VERSION



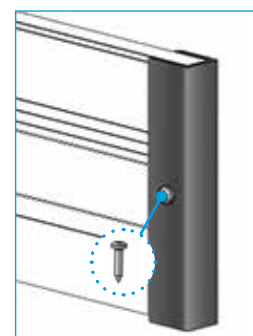
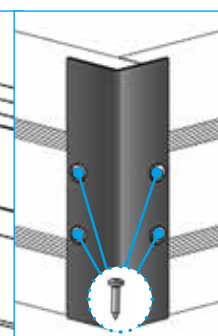
1 - Place the toeboard support on the base and secure it with 4 self-drilling screws 4.8 x 16 (2 screws on each side).



2 - Attach the toeboard lengths between them through the toeboard connectors and 4 self-drilling screws 4.8 x 16.

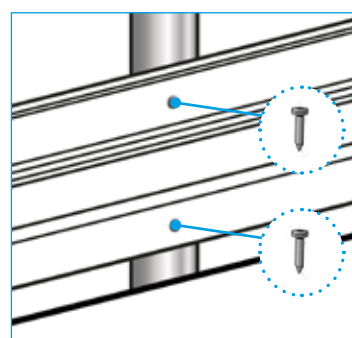


3 - For angles, secure the inner and external connectors with 8 self-drilling screws 4.8 x 16.

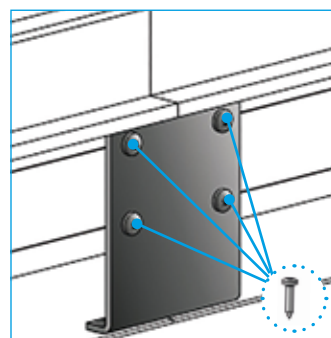


4 - Finally, fix the toeboard plugs with one self-drilling screw 4.8 x 16.

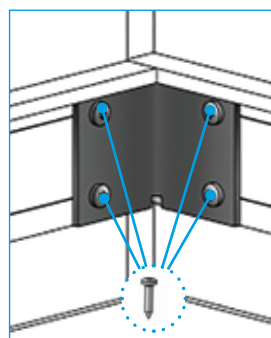
TOE BOARD FIXATION FOR VA & VAD VERSIONS



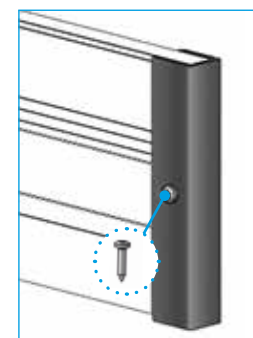
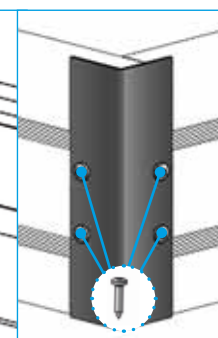
1 - Attach the toe board to the support with 2 screws T25 4.8x32



2 - Attach the toeboard lengths between them through the toeboard connectors and 4 self-drilling screws 4.8 x 16.



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

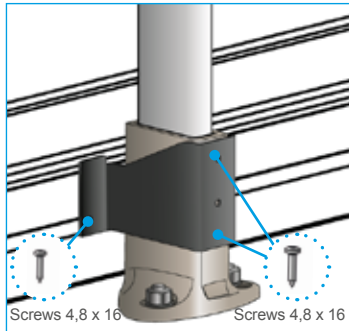


4 - Finally, fix the toeboard plugs with one self-drilling screw 4.8 x 16.

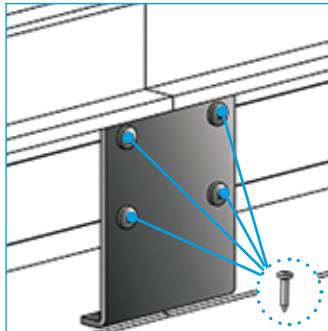


FOLDING GUARDRAILS SYSTEM

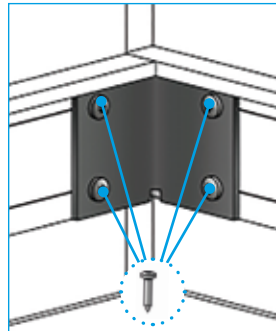
TOE BOARD FIXATION FOR VS VERSION



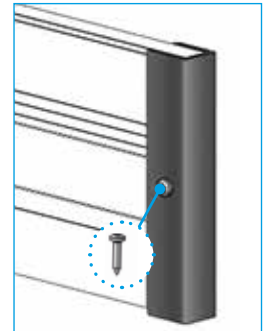
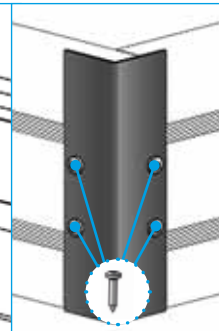
1 - Remove the pre-mounted round-headed screws M8 x 10 on the top fix base and place the toe board on the mounting base. Then fix it with 2 T25 self-drilling screws 4.8 x 16. Finally, fix the toe board to the support with 2 other self-drilling screws T25 4.8 x 16 (1 on each side of the support).



2 - Attach the toeboard lengths between them through the toeboard connectors and 4 self-drilling screws 4.8 x 16.

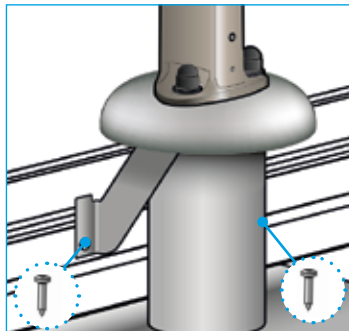


3 - For angles, secure the inner and external connectors with 8 self-drilling screws 4.8 x 16.

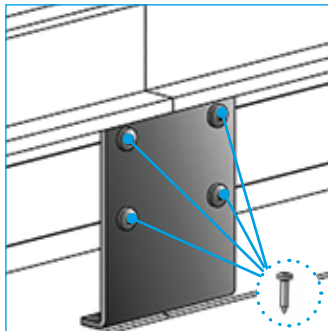


4 - Finally, fix the toe-board plugs with one self-drilling screw 4.8 x 16.

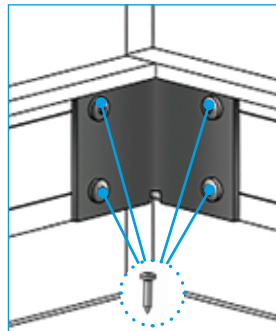
TOE BOARD FIXATION FOR VBE VERSION



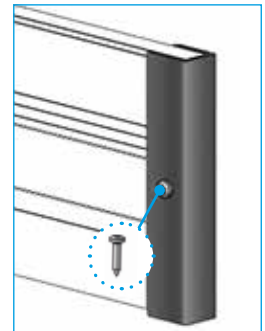
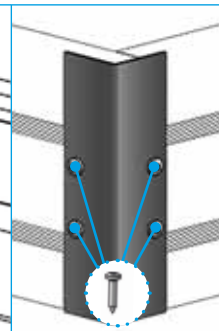
1 - Fix the toe board to the support with 2 other self-drilling screws T25 4.8 x 16 (1 on each side of the support).



2 - Attach the toeboard lengths between them through the toeboard connectors and 4 self-drilling screws 4.8 x 16.



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

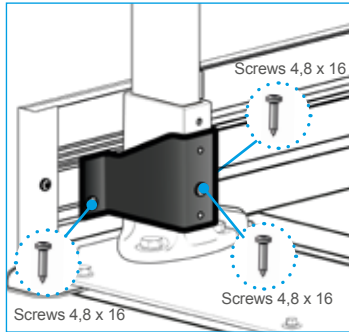


4 - Finally, fix the toe-board plugs with one self-drilling screw 4.8 x 16.

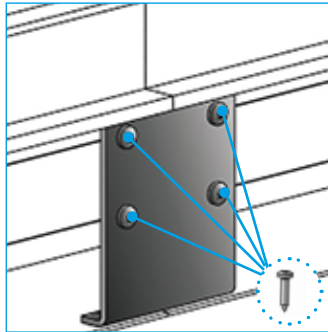


FOLDING GUARDRAILS SYSTEM

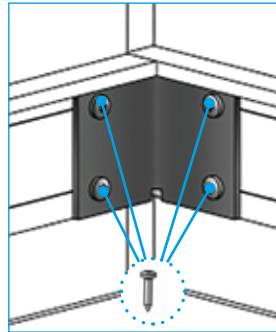
TOE BOARD FIXATION FOR VBA VERSION



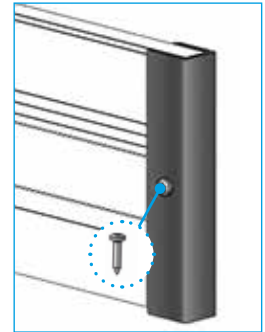
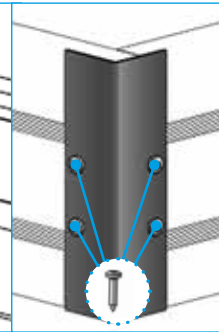
1 - Remove the pre-mounted round-headed screws M8 x 10 on the top fix base and place the toe board on the mounting base. Then fix it with 2 T25 self-drilling screws 4.8 x 16. Finally, fix the toe board to the support with 2 other self-drilling screws T25 4.8 x 16 (1 on each side of the support).



2 - Attach the toeboard lengths between them through the toeboard connectors and 4 self-drilling screws 4.8 x 16.

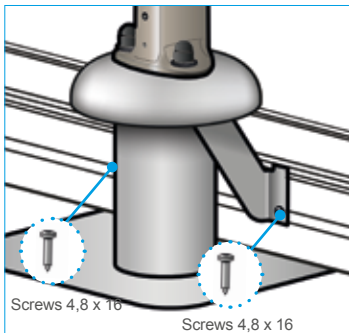


3 - For angles, secure the inner and external connectors with 8 self-drilling screws 4.8 x 16.

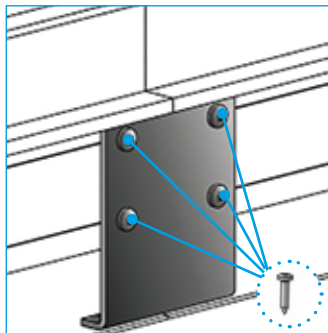


4 - Finally, fix the toe-board plugs with one self-drilling screw 4.8 x 16.

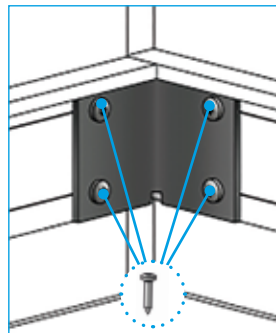
TOE BOARD FIXATION FOR VDE AND VDSE MODELS



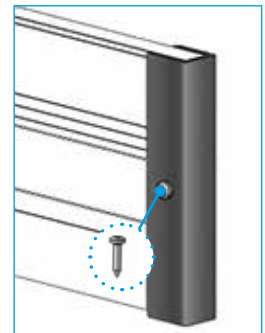
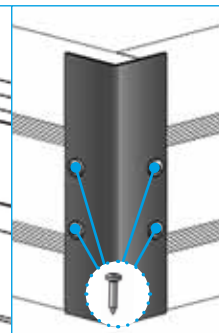
1 - Fix the toe board to the support with 2 other self-drilling screws T25 4.8 x 16 (1 on each side of the support).



2 - Attach the toeboard lengths between them through the toeboard connectors and 4 self-drilling screws 4.8 x 16.



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



4 - Finally, fix the toe-board plugs with one self-drilling screw 4.8 x 16.