



NEW!

Easy fit Rail Clamp

**Safety railing system
for flat roof inaccessible
to the public**

Barrial®
 **ICB**
PROJECTS



dani alu Your partner in aluminium

Our company philosophy is expressed by the formula:

ideas + aluminium = dani alu.

ideas: The search for practical and reliable solutions in association with aluminium professionals

aluminium: A high-quality material that is strong, lightweight, decorative, corrosion-resistant and 100% recyclable

dani alu: Your partner, a brand to inspire confidence

Over the past thirty years or so, dani alu has become the leader in the design, manufacture and marketing of aluminium systems for the building industry.

dani alu can give you the reactivity and flexibility you need in the management of your projects.

Above all, dani alu provides a team to serve their clients and to assist them in the analysis of their problems and in the specification of suitable technical solutions.

dani alu pays permanent attention to the improvement of their existing products and the perfection of new, improved, innovative products.



Danilac: a choice of 250 RAL colours

Powder coating forms an integral part of dani alu's manufacturing process. As all our products, Barrial can be supplied as standard in any colour from the RAL range.

The Danilac brand is characterised by a chrome-free, eco-friendly procedure, with quality control carried out in the laboratory.

Surface treatment

- Degreasing
- Rinsing
- Removal of surface irregularities
- Rinsing
- Rinsing in demineralised water
- Organic passivation
- Drying

Powder coating

The powder is applied using an electrostatic process and then polymerised at 200°C. The powder coating can be any colour in the RAL range. The standard finish is gloss.

A satin-silver powder-coated finish, similar to anodised aluminium, can also be provided.

Numerous other colours and special finishes can be provided on request. Please ask for our advice!





Contents	page
Fixings, Shoes	6
External Wall Insulation Systems (EWIS) solution	10
Posts, rails and accessories	12
Easy fit Rail Clamp	13
Access door	14
Folding Barrial	15
Accrofil	16
Other systems	17
Examples of use	18
Regulations, standards and tests	22
Specification clauses	23
Order / Request for quotation	24

Barrial®

The key to a safe roof

The guarantee of a safe roof that complies with regulations

The Barrial safety railing system is a collective and permanent system for protection against falling from height, which meets all the statutory constraints.

Analysis of the statutory texts page 22.

Thousands of references in France and abroad

Very many private building owners (housing, hotels, shopping centres, factories, airports, sports halls, hospitals, water towers, theme parks, etc.) or public building owners (regional authorities, universities, teacher training centres, technology training centres, nursery schools, secondary schools, technical colleges, media centres, museums, hospitals, town halls, police stations, gyms, sewage treatment stations, etc.) have already chosen Barrial.

These include numerous prestigious references, such as Immobilière 3F, AXA, Carrefour, Leclerc, Crédit Agricole, France Telecom, Renault, BMW Munich, RATP, CRAM, La Poste, Bouygues, Novotel, HEC, SANOFI, EDF, Air France, Aéroports de Paris, Frankfurt Airport, FNAC, Disneyland Paris, etc.

Their selection criteria have been the modularity of the system, the quality of the materials used and the commitment of a manufacturer renowned for its service and its creativity.

A tested and approved system

Barrial has been subjected to tests in accordance European Standard. Carried out by independent, accredited organisations. The test reports are available on request.

Patented system. Registered trade marks and designs.

Subject to modifications.

Examples of use are given for information purposes only.

In the catalogue, all measurements are given in mm.



Barrial®

A modular system that can be adapted to all circumstances

Whether in its posts, its rails or its fixing shoes, this system allows perfect adjustment at all points and is thus easy to install, making it much appreciated on site.

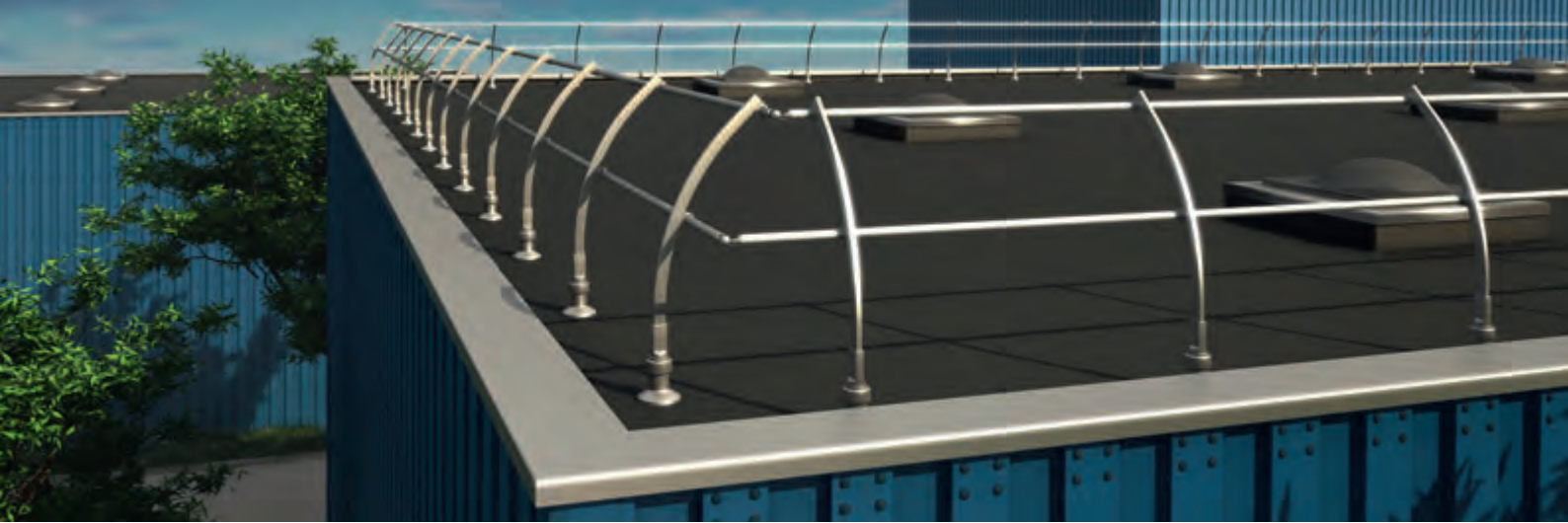
The various models of fixed railings (with straight, angled, curved or folding posts) all form part of the same system.

The combination of the different methods of fixing (inside, on top of or outside a parapet wall; to roof slab; to steel panel roofing) enable them to be adapted to the most complex sites.

The finish (untreated aluminium or Danilac powder coating) of Barrial will enhance the appearance of your buildings. Our powder coating and surface treatment unit allows us to give a quick response to all your requirements in relation to finishes.

In the event that none of the proposed methods of fixing can be used, the standard allows the use of a self-supporting railing. Refer to our documentation for self-supporting Barrial.

Fixing	Fixed post			Folding post	Couvernet (coping) option	Skirting option	suitable for EWIS
	straight	curved	angled				
inside parapet wall							
A	●	●	●	●	●		
Ae	●	●	●	●	●		
A5	●	●	●	●			
on outside of wall							
A	●	●	●		●	●	
Ae	●				●	●	
A5	●	●	●			●	
on parapet wall							
Z	●	●	●	●	●		
Zc	●	●	●		●		●
M	●	●	●	●			
on roof slab							
D	●	●	●	●	●	●	●
on metal roof systems							
BA	●	●	●	●	●	●	●

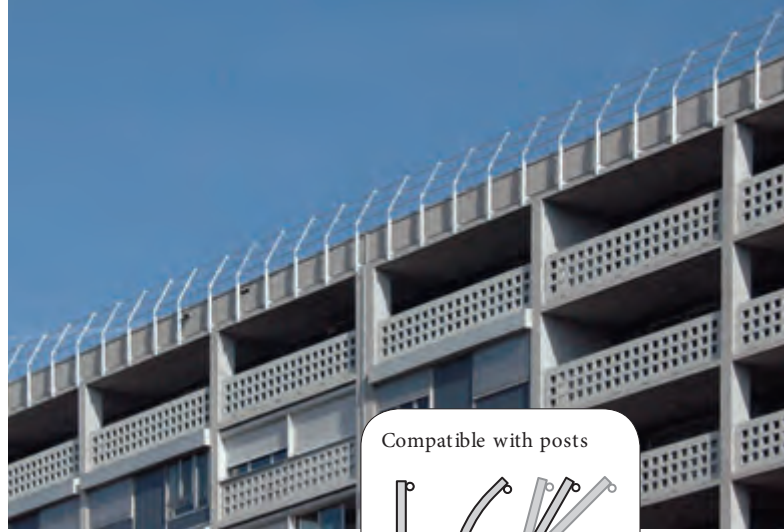


Barrial Complete assistance from preliminary design to installation

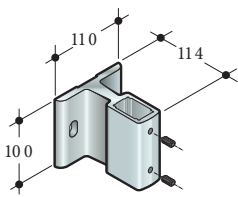
dani alu will provide you with complete assistance in all the phases of your project.

- Risk analysis
- Technical diagnosis
- Specification of suitable solutions
- Site assistance
- Detailed setting out drawings using Danisoft-Barrial
- Made to measure and delivered to site
- Technical assistance with installation
- After-sales service

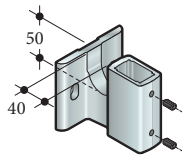




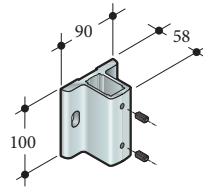
Fixing on the inside, or outside of the parapet wall



Shoe A



Shoe Ae



Shoe A5

Shoe A

Shoe A is fixed to the inside of a parapet wall. It can also be used on the outside of the wall. It is compatible with the use of a Couvernet aluminium coping. Shoe A is the simplest and most economic al method of fixing, if the parapet wall is high enough.

Shoe Ae

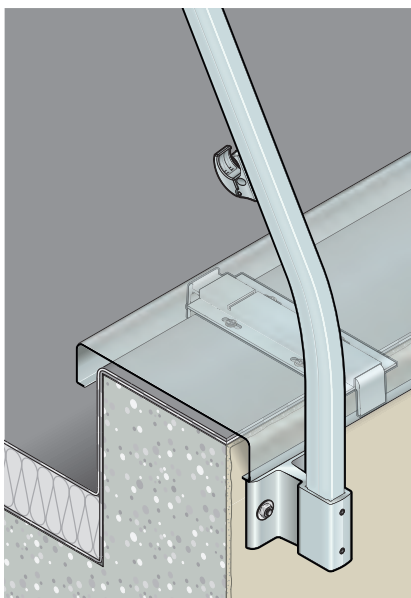
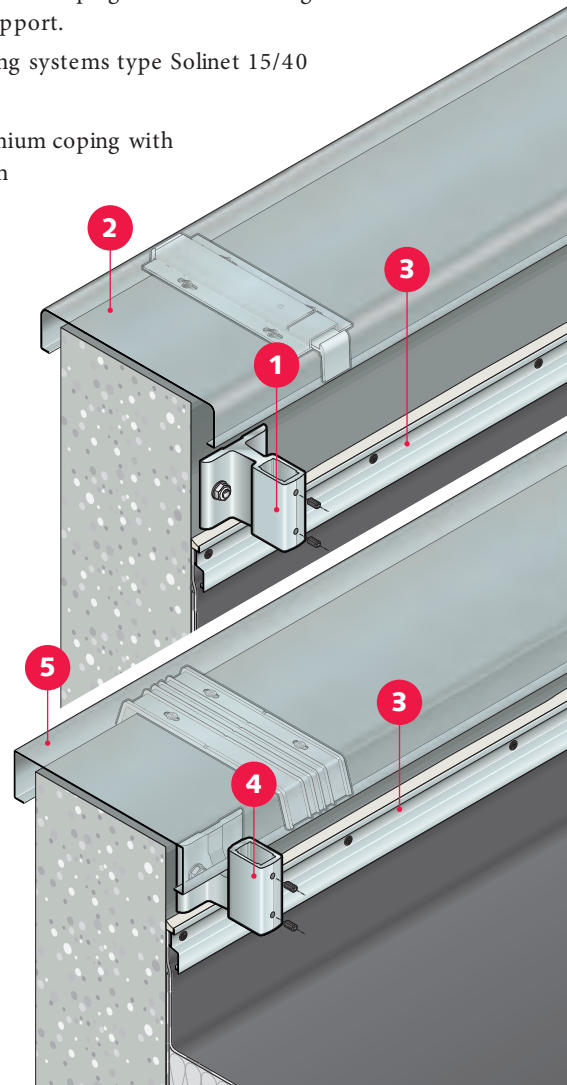
If the parapet wall is not high, and has a coping, the cut-out in shoe Ae enables it to be fixed at an acceptable height by sliding it under the coping.

Shoe A5

Shoe A5 is a good solution when it is certain that the parapet wall will not have a coping

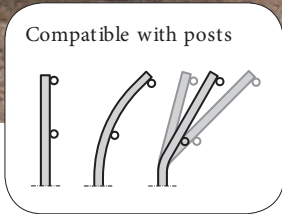
Examples of use:

- 1 Shoe A
- 2 Couvernet aluminium coping with rounded edges and automatic support.
- 3 Aluminium flashing systems type Solinet 15/40
- 4 Shoe Ae
- 5 Couvernet aluminium coping with square edges with ribbed support

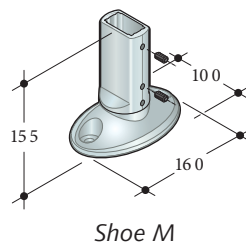
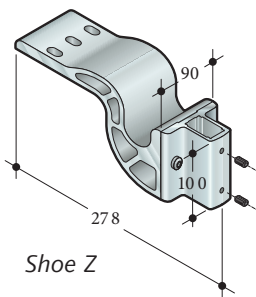


Shoe A Fixing on outside of wall

Can be used with
curved or angled
post



Fixing to top of parapet wall



Shoe Z

Shoe Z meets the needs of most flat roofs, where the heights of the parapet walls are generally insufficient for a fixing inside the parapet wall. It provides a fixing to the top of the parapet wall, thus avoiding the need to pierce the roofing upstand.

Minimum width of parapet wall: 120 mm.

Maximum slope of the support: 5°.

For a parapet wall with a protective capping, it will be necessary to use an offset (see particular case page 21).

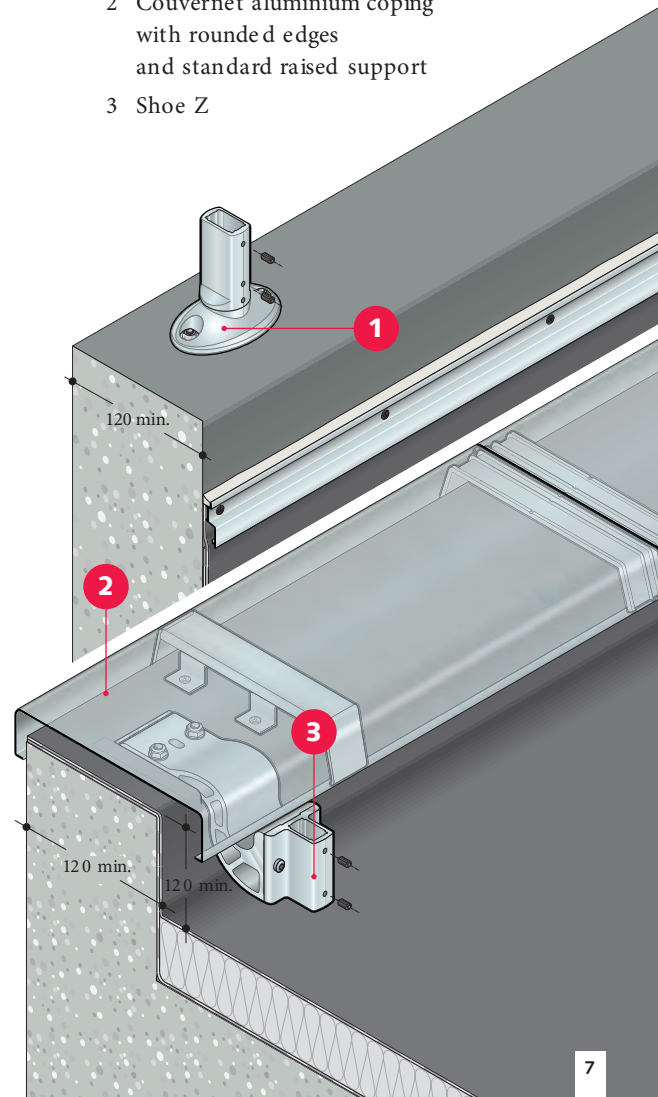
Shoe M

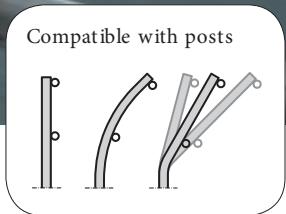
With its two fixings parallel to the plane of the safety railing, shoe M can be used on the narrowest parapet walls.

Minimum width of parapet wall: 120 mm.

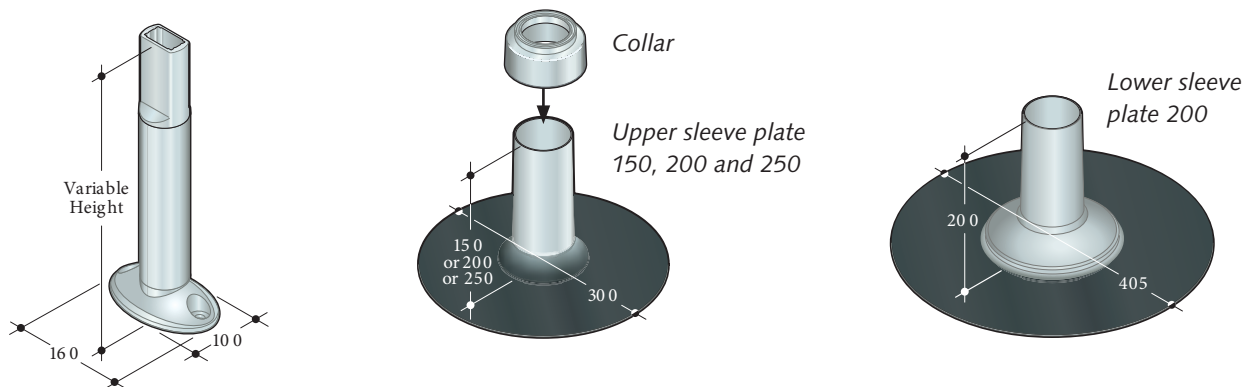
Examples of use:

- 1 Shoe M
- 2 Couvenet aluminium coping with rounded edges and standard raised support
- 3 Shoe Z





Fixing to roof slab



Shoe D

If there is no possibility of fixing to a parapet wall, shoe D provides a fixing to the roof slab through roof finishes of various thicknesses.

The various aluminium base plates allow the making good of the roof finish in accordance with good practice.

The **150 upper sleeve plate** is used to connect a self-finished roof finish on insulation to a metal sleeve.

The **200 or 250 upper sleeve plates** are used if the roof finish is protected with chippings.

The **200 lower sleeve plate** is used to make good a roof finish and its vapour barrier, without insulation.

Collar

At its top, the base plate is protected by a thermoplastic collar that precisely fits the diameter of the tube and has a groove to take a strip of polyurethane mastic.

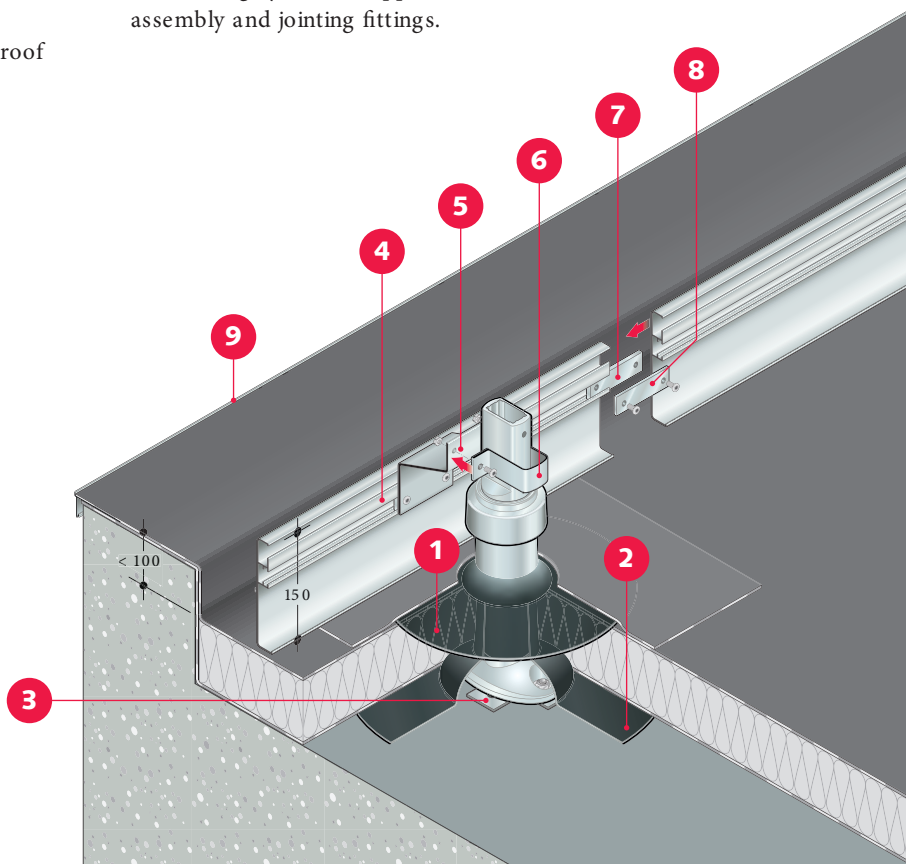
Skirting

If there is no perimeter parapet wall, or if the height of the existing parapet wall is less than 100 mm, a skirting will have to be provided (see page 22).

The skirting system is supplied made-to-measure, with its assembly and jointing fittings.

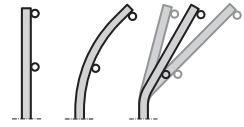
Examples of use:

- 1 150 upper sleeve plate
- 2 200 lower sleeve plate (option)
- 3 Wedge
- 4 Skirting
- 5 Offset piece
- 6 Hanger
- 7 Tightening lug
- 8 Backplate
- 9 Rivnet 35/80

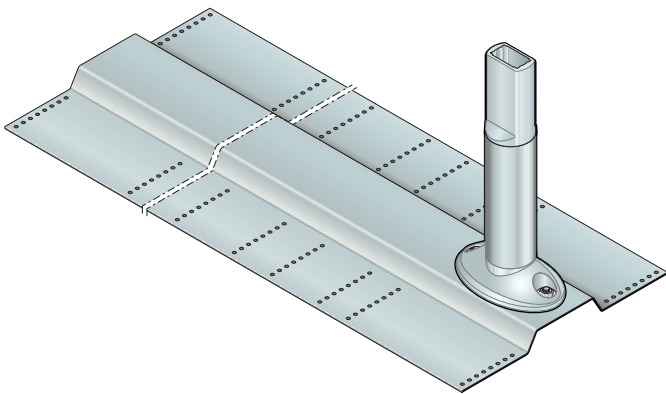




Compatible with posts



Fixing to metal roof systems



Shoe BA

Shoe BA provides a fixing for most metal panel roofs:

- dry metal panels
- insulated metal panel with external weatherproofing (insulation > 30 mm)

Shoe BA is compatible with ribbed sheet metal roof coverings.

The panels and the supporting structure must be sized to take the loads as specified.

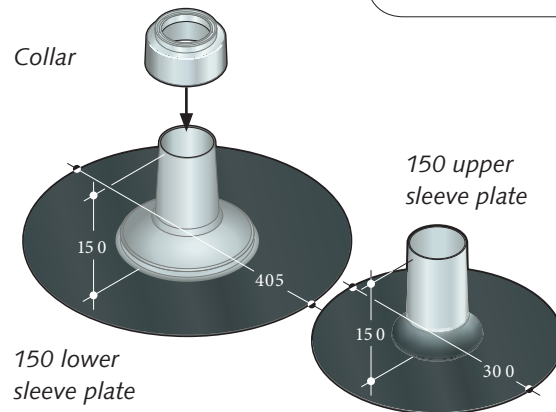
The plates are fixed to the tops of the ribs. The system has been designed to be adapted to all types of ribs and to be fixed along or across the ribs.

Max. slope = 10° (i.e. 17.6%)

In the case of an insulated metal panel weatherproofed on the outside, the aluminium sleeve plates will provide making good in accordance with good practice.

150 upper sleeve plate

Required for a roof covering system more than 70 mm thick, it is used to connect a self-finished roof finish on insulation to a metal sleeve.



150 lower base plate

Suitable for a roof finish up to 70 mm thick, it allows the roof finish to be made good and the vapour barrier to be connected.

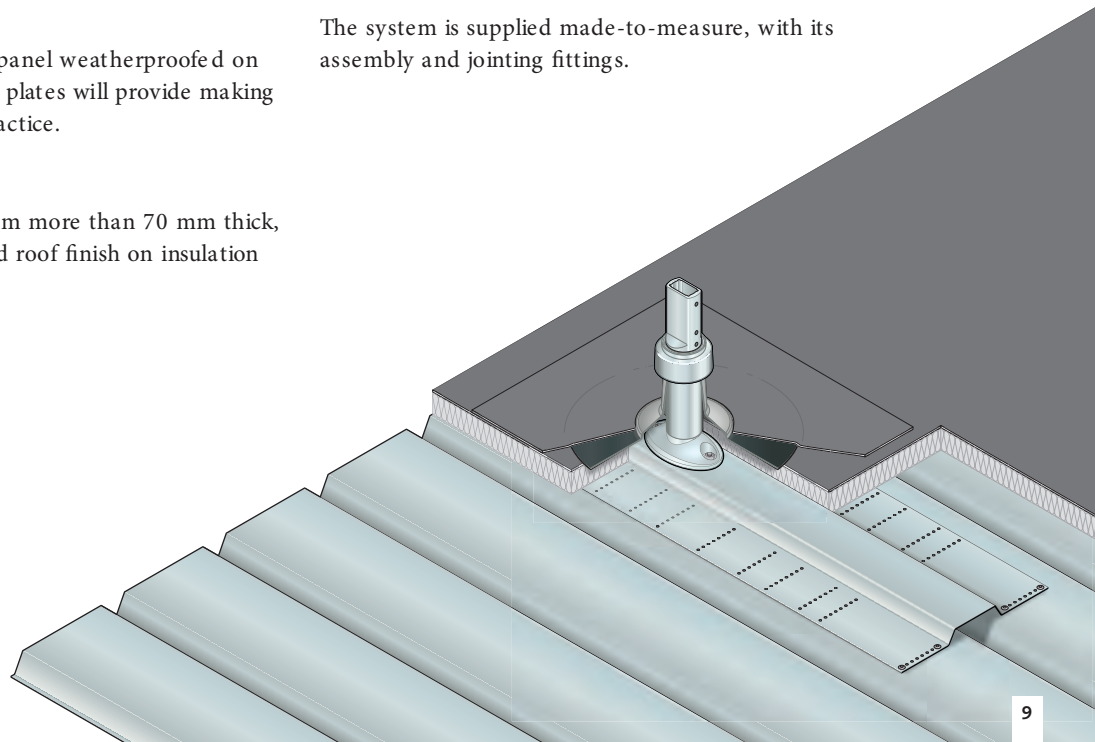
Collar

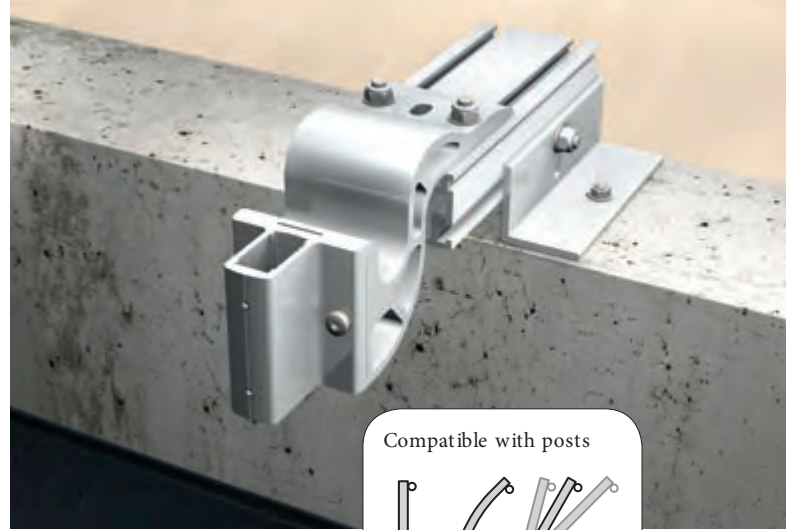
At its top, the sleeve plate is protected by a thermoplastic collar that precisely fits the diameter of the tube and has a groove to take a strip of polyurethane mastic.

Skirting

If there is no perimeter parapet wall, or if the height of the existing parapet wall is less than 100 mm, a skirting will have to be provided (see page 22).

The system is supplied made-to-measure, with its assembly and jointing fittings.





External Wall Insulation Systems (EWIS) solution

Fixing to insulated parapet wall

Shoe Zc

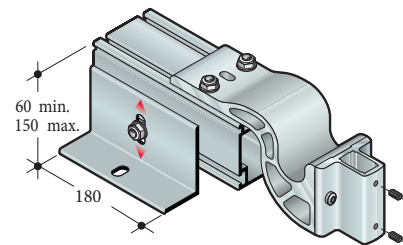
The fixing bracket for an insulated parapet wall is adapted to shoe Z with a fixed post.

It provides compensation for insulation from 60 to 150 mm thick. The height and the offset are factory-preset to suit the features of the insulation provided.

The system also includes a special metal sheet for making good the roof finish.

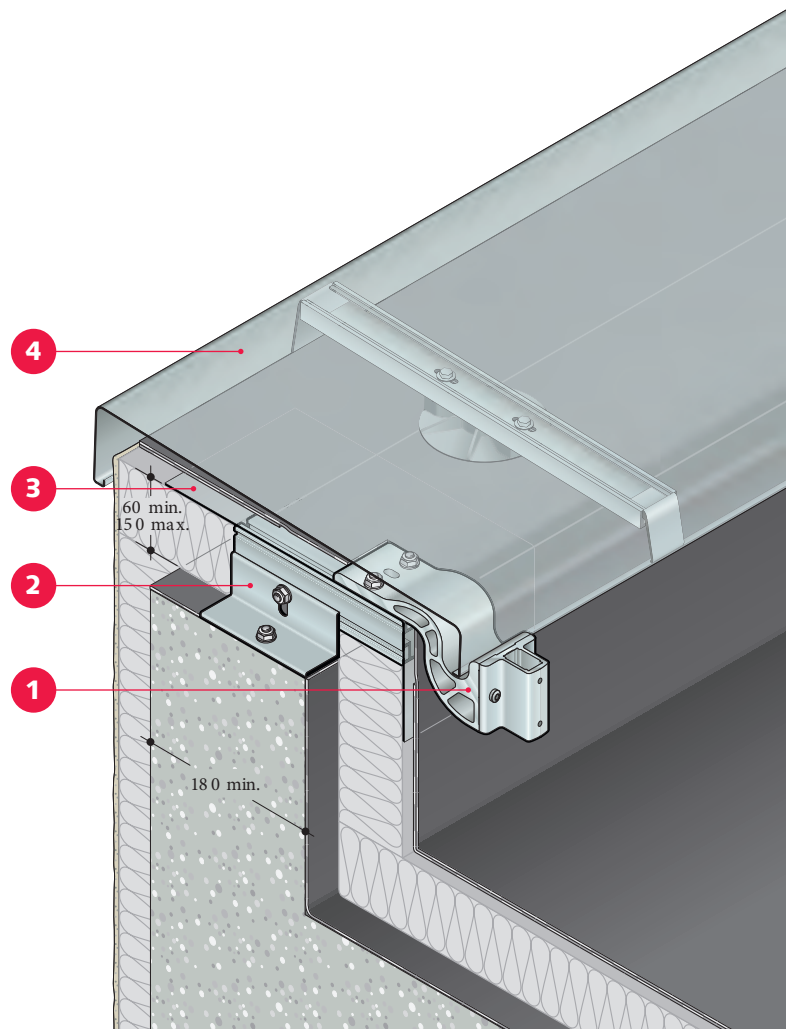
It is supplemented by a Couvernet ITE (EWIS) aluminium coping with a plate or bracket with a thermal break (Th).

Shoe Zc



Examples of use:

- 1 Shoe Z
- 2 Fixing bracket for insulated parapet wall type CZ
- 3 Metal sheet for making good roof finish
- 4 Couvernet ITE (EWIS) aluminium coping with plate Th





Couvernet[®] ITE (EWIS) on plate with thermal break (Th)

Couvernet ITE (EWIS) on plate with thermal break (Th) is an aluminium coping system for a parapet wall with thermal insulation on the outside (EWIS), compatible with the Barrial shoe Z system on a bracket.

The special support reduces the thermal bridging caused by fixing a coping to an insulated parapet wall, and helps to achieve levels under the current demanding legislation.

The support comprises a plate with thermal break (Th) in zamac (a corrosion-resistant alloy) for the fixing to the parapet and an aluminium slider to fix to the plate to hold the coping.

45% less thermal bridging* than a traditional solution
 (* Thermal bridge: 0.17 W/mK for a concrete parapet wall 200 mm wide, 325 mm high,
 Typical R and external wall R = 5 m²K/W,
 parapet wall R = 4 m²K/W)

Field of application:

Insulation materials category C minimum (rigid materials).

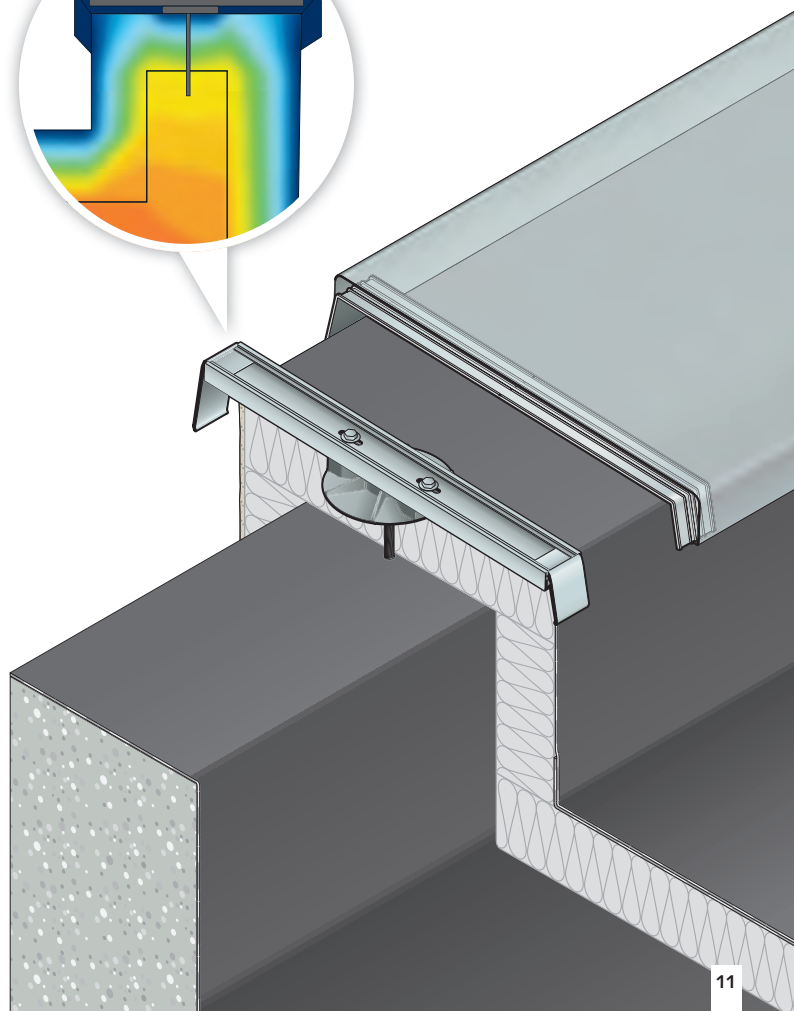
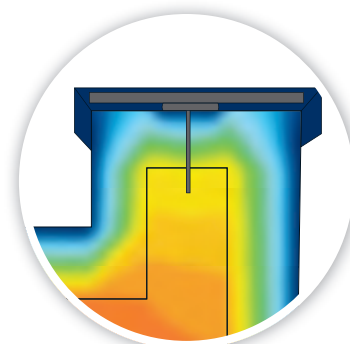
Couvernet ITE (EWIS) is also available in a version with a thermal break bracket (Th), suitable for any type of insulation.

Technical validation

dani alu will help you find a solution that suits the building's required levels of energy performance.

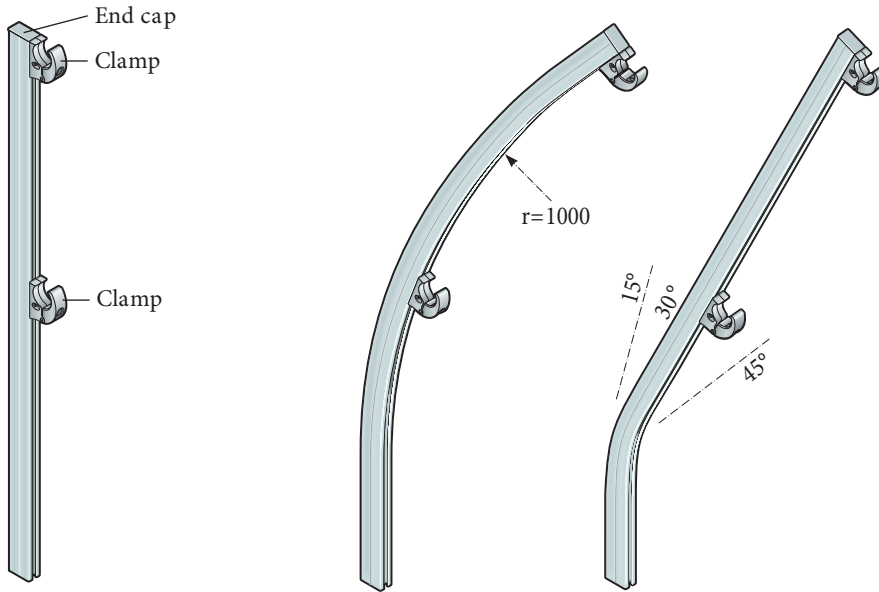
Calculations of the sizes in accordance with Eurocodes can be provided on request.

- Optimum reduction of the thermal bridge
- Integral falls for rainwater run-off
- No cutting of the insulation
- A single mechanical fixing per support
- Adjustable slider for proper alignment



Find the Couvernet documentation on our web site www.danialu.com or by using this QR code.

Barrial® Posts



Straight fixed post

The straight fixed post will be suitable in most cases.

Curved fixed post or angled fixed post

Curving (1.00 m radius) or bending (to 15°, 30°, 45° or other angle on request) improves the unobtrusiveness and appearance of safety railings on external walls.

It also serves to keep users further away from the edge of the roof.

If the edge of the roof is at the maximum permitted development height, the curved or angled model may keep the building within its permitted overall size.

Factory pre-assembly and pre-adjustment

The number and spacing of the stirrups for the rails will be specified by our design office to suit the size of the parapet wall and the type of shoe. The posts will be made to measure. The stirrups and the post end-caps are assembled in the factory.

Rails and accessories

The **rails** are discreet, facing towards the interior of the roof.

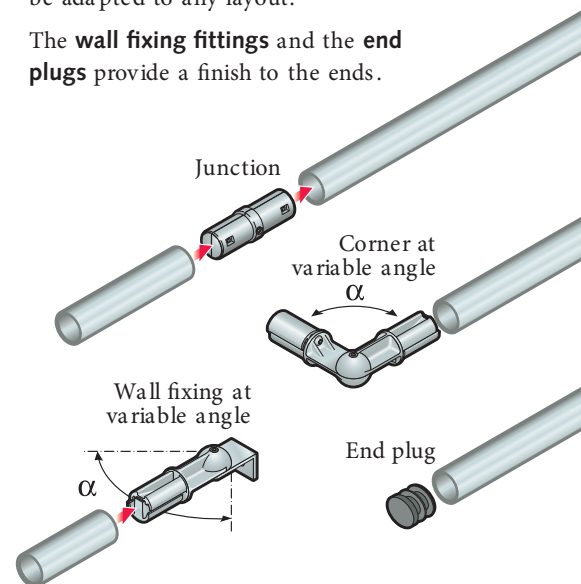
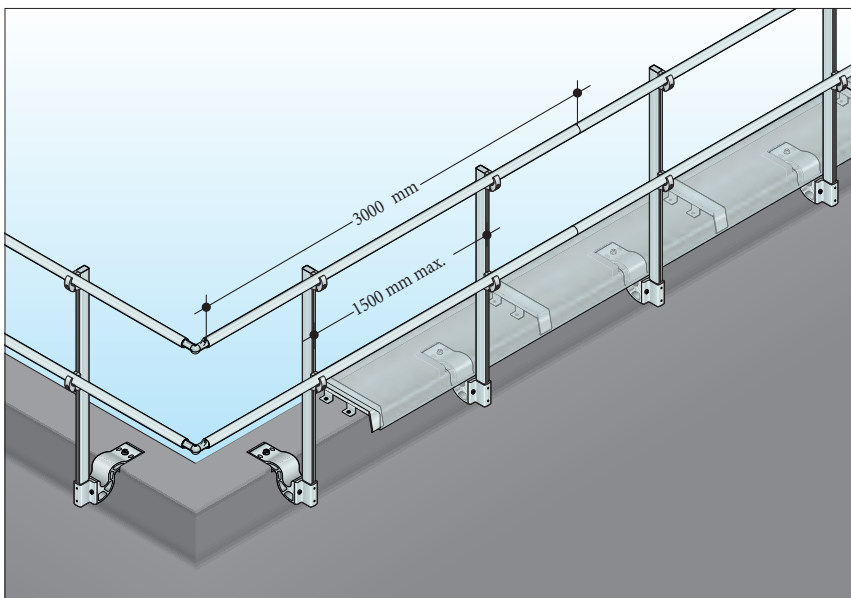
They are used either as a handrail or an intermediate rail.

Standard length: 3000 mm.

The rails are connected together by mechanically crimping using the **junction piece**, to ensure safe and attractive continuity between individual units.

At the corners, the rails are linked with a **variable angle corner piece**, so as to be adapted to any layout.

The **wall fixing fittings** and the **end plugs** provide a finish to the ends.





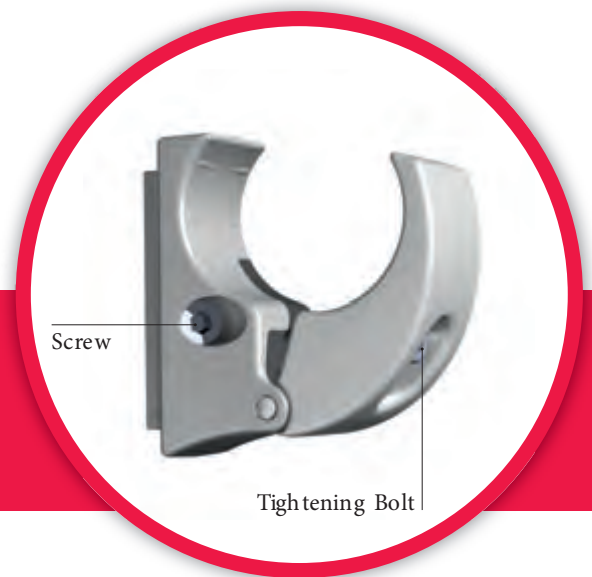
Barrial[®] Rail Clamp

Tightening bolt

The Easy fit Rail Clamp has been designed to simplify the erection of the Barrial system and allows the heights of the rails to be adjusted simply after fixing, if necessary.

The advantages:

- **Factory Installed Clamps**
- **rails fixed without scratching them**
- **adjustment possible without removing the rail**



Simplified erection

Thanks to the Easy fit Rail Clamps, the insertion of the rails into the posts is simplified.

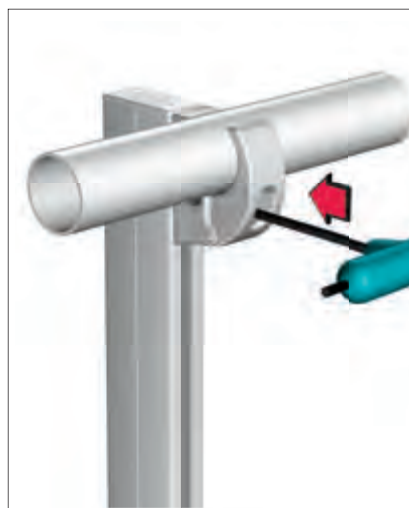
The use of the dani alu spanner (No. 4 hex key) ensures rapid and safe tightening.

Adjustment made easier

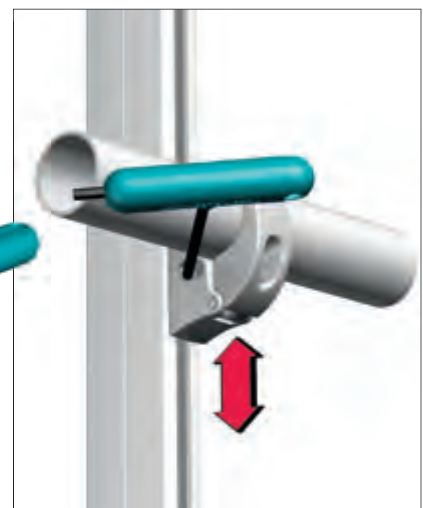
The fixing bolt remains accessible after fixing, so that the height of the rails can be adjusted, if necessary, without having to remove them.



Positioning the rail



Tightening the clamp



Possibility of height adjustment

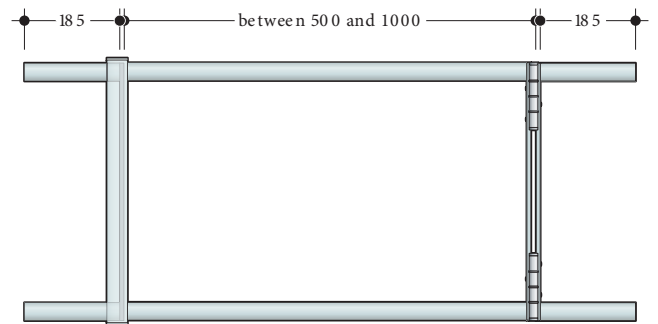


Barrial® access gate

The Barrial access gate is made to measure to fit perfectly into Barrial systems, including those with angled or curved posts.

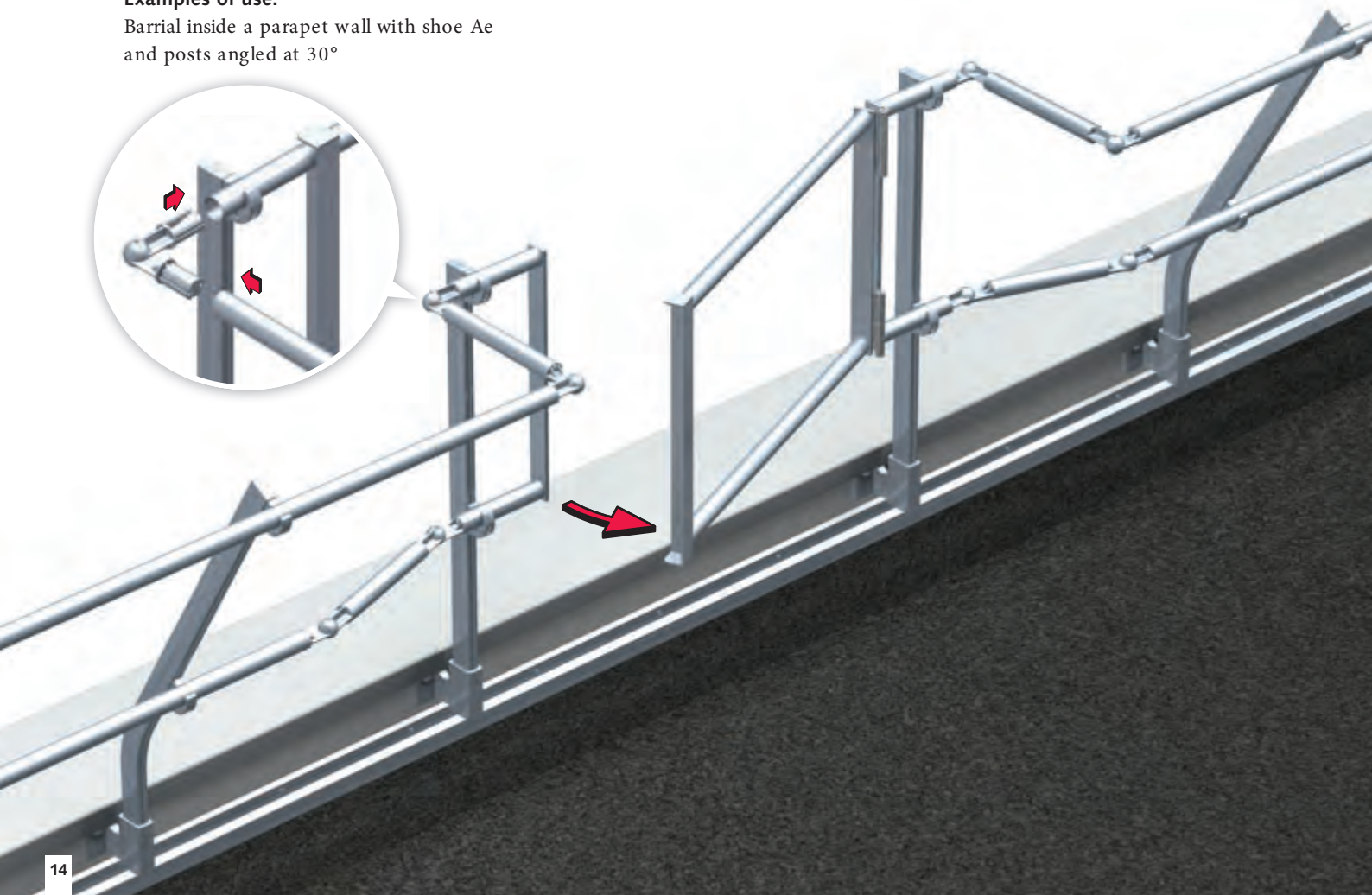
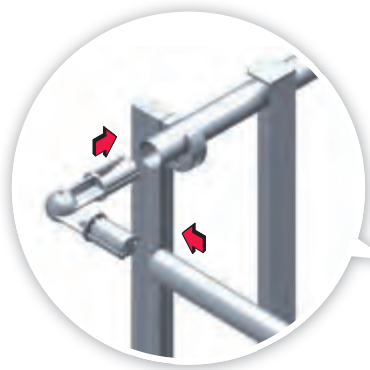
The clear opening width is 800 mm in the standard version, but can be between 500 and 1000 mm on request.

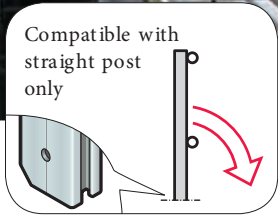
The gate must be fixed so as to open inwards, towards the roof.



Examples of use:

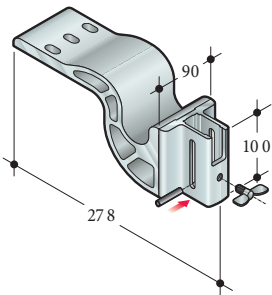
Barrial inside a parapet wall with shoe Ae and posts angled at 30°



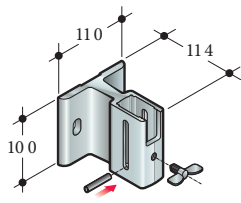


Folding Barrial

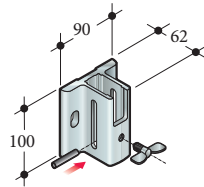
Shoe Zr



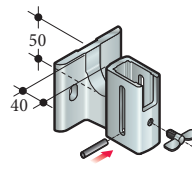
Shoe Ar



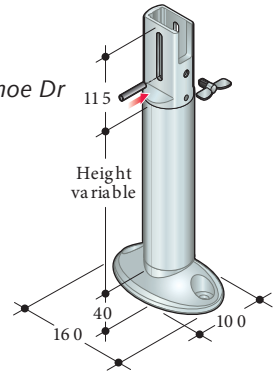
Shoe A5r



Shoe Aer



Shoe Dr



If strict architectural constraints (classified sites, etc.) do not allow the use of visible fixed railings, this model provides a compromise between architectural preferences and safety obligations.

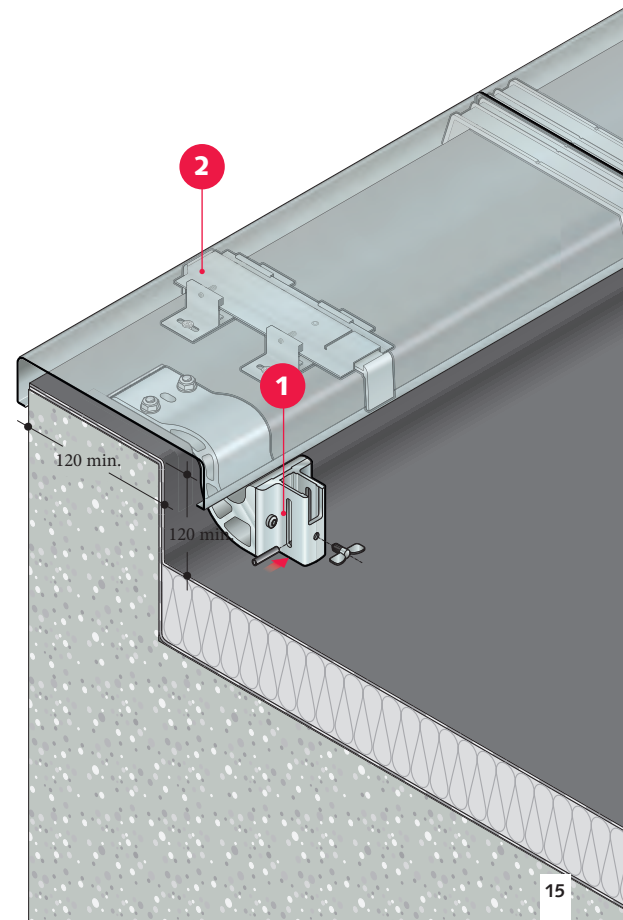
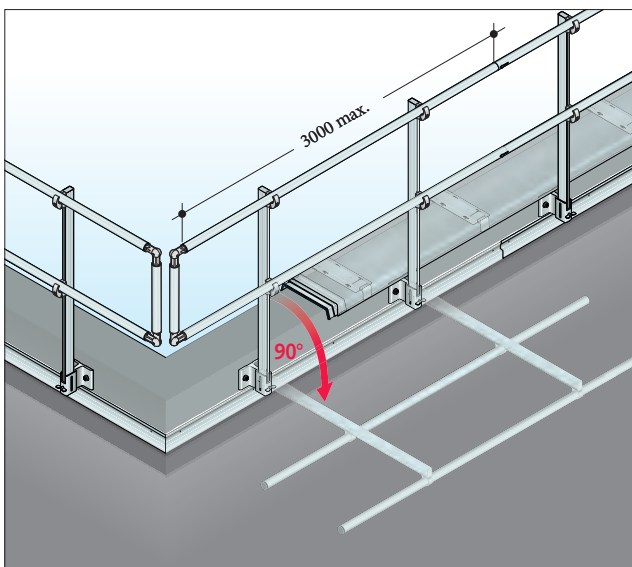
The folding version is available for most Barrial shoes. Particular machining of the shoes, posts and rails allows the upper part of the railing to be folded down onto the roof to make it invisible when work is not being carried out on the roof.

Each folding module will have at least two posts.

The folding rails are supplied purpose-made to the modules indicated on the detailed setting out drawing (maximum length: 3000 mm), with sliding internal junction pieces. At ends and at angles, there is a vertical link between the handrail and the intermediate rail.

Example of use:

- 1 Shoe Zr
- 2 Couvert aluminium coping with rounded edges and standard raised support





Barrial Accrofil

Accrofil is a safety net attachment system for roofers, designed specifically for Barrial permanent safety railings.

With the addition of Accrofil, Barrial railings now meet a dual requirement:

- **The collective and permanent safety of inaccessible flat roofs or roof-top plant rooms** by the use of railings, in compliance with European standard.
- Compliance with the **requirements of the standard for the safety of roofers**, which requires the use of railings when working on a roof.

Using Accrofil, the net acts as an infill to the gaps between the rails of the railing throughout the period of the works, preventing items from falling and improving personal safety on the roof.

Accrofil is recommended for use where Barrial is fixed to a parapet wall, with straight, angled or curved posts.



Elements of the system

Accrofil is formed from 3 parts made from stainless materials:

- 1 a loop
- 2 a spring
- 3 a clamping bolt



Caution:

Accrofil is used exclusively with rope nets complying with standard EN 1263-1 (nets not provided).

Accrofil cannot, under any circumstances, be used as an anchor point for an item of Personal Protection Equipment, or for any other use that does not meet the function described in this documentation.

Barrial®

Other systems

Self-supporting Barrial

In the event that none of the proposed methods of fixing is possible, the standard allows the use of a self-supporting railing. Refer to our documentation for self-supporting Barrial.

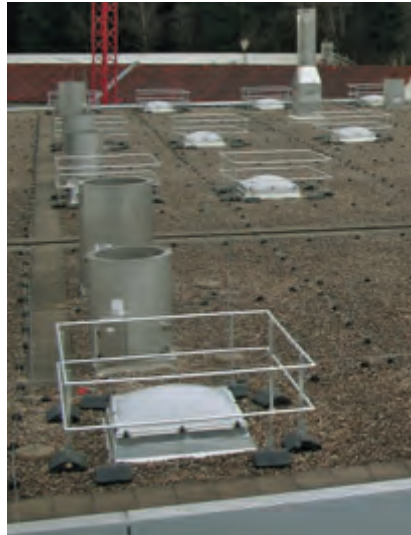


Self-supporting Barrial

Specific cases

Barrial can also be adapted to very many specific cases, in particular for safety around rooflights and to create escape corridors.

Our design office is at your disposal to adapt Barrial to your project.



Safety railings around rooflights



Creation of escape corridors

Safety + Energy

Barrial photovoltaic

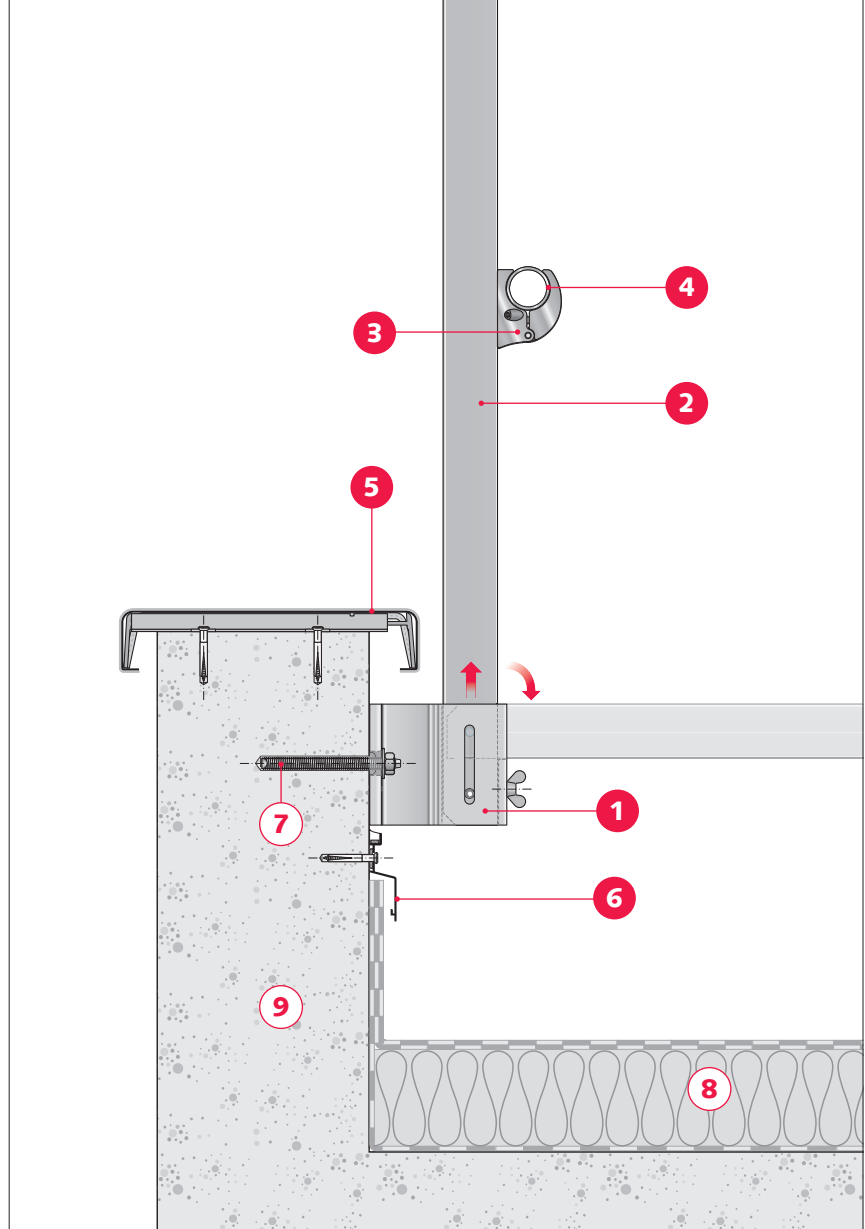
Safety railing system with integral photovoltaic panels for inaccessible flat roofs. Please ask for our advice!



Examples of use

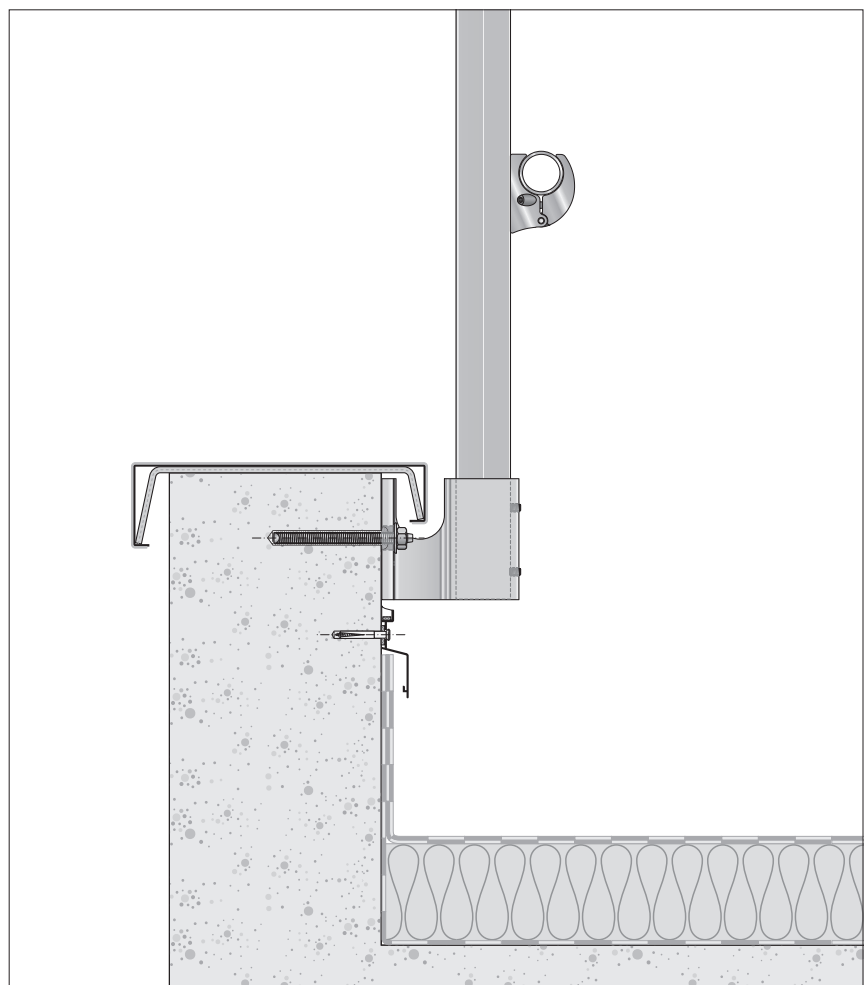
Fixing inside parapet wall using shoe Ar

- 1 Shoe Ar
- 2 Folding post
- 3 Rail Clamp
- 4 Rail
- 5 Couvertnet with rounded edges and automatic support
- 6 Solinet 15/40, aluminium flashing for inaccessible flat roofs
- 7 Fixing
- 8 Flat roof covering
- 9 Parapet wall



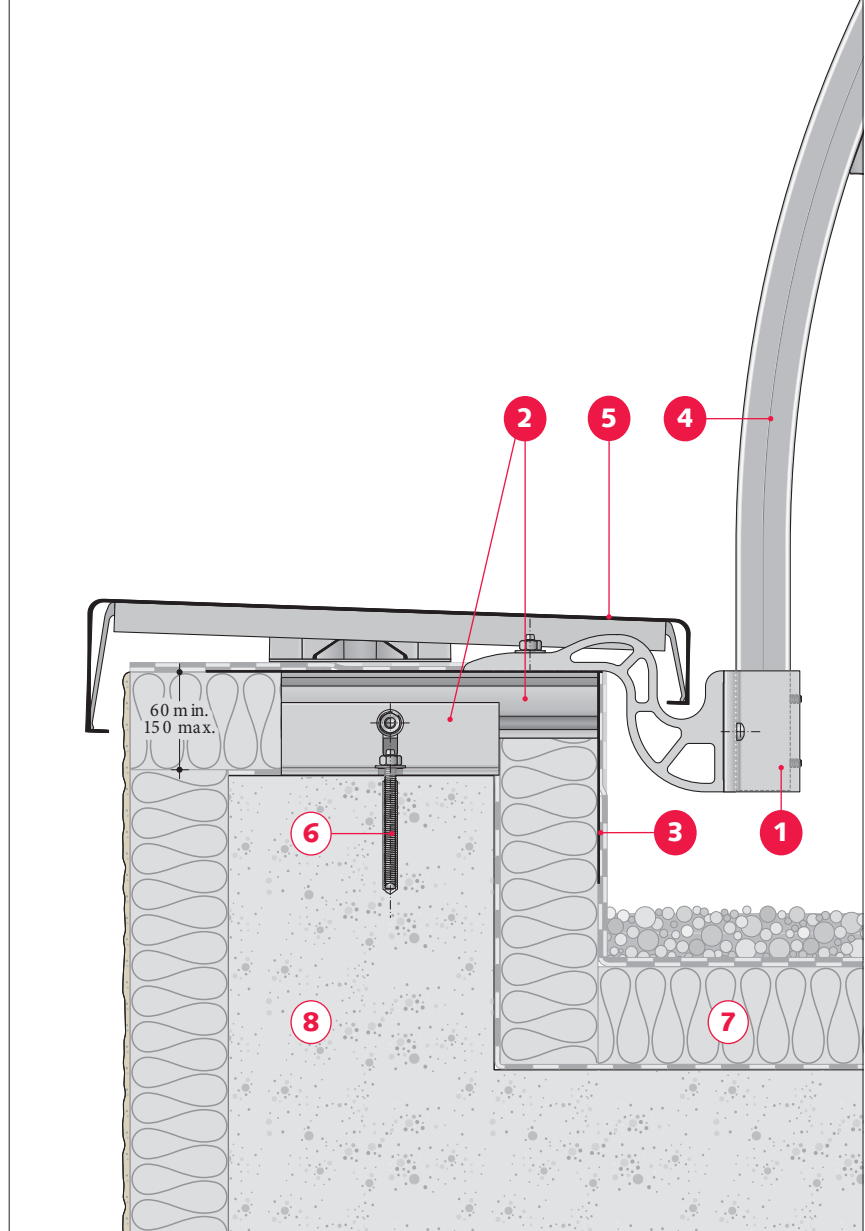
Fixing inside parapet wall with shoe Ae

If the parapet wall is not high, shoe A can also be supplied with a cut-out. Using shoe Ae (with cut-out), the internal projection of the Couvertnet coping is 40 mm, whatever the type of background.



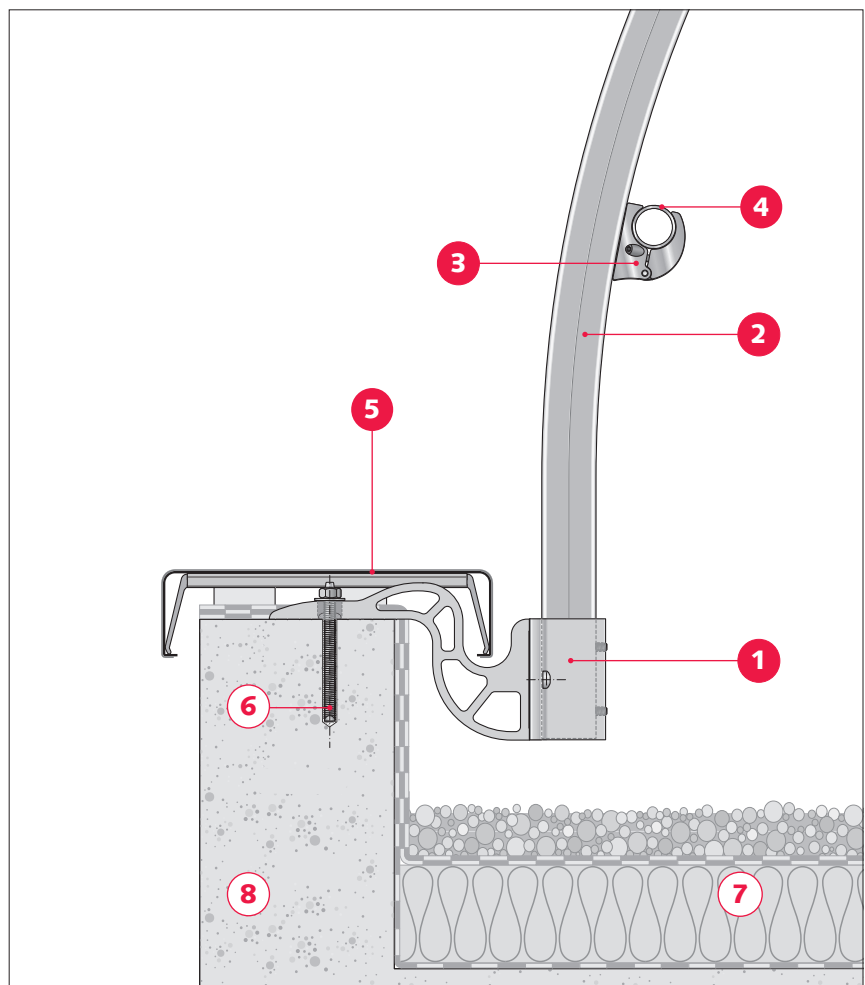
Fixing to insulated parapet wall with shoe Zc (shoe Z + fixing bracket for insulated parapet wall)

- 1 Shoe Z
- 2 Fixing bracket for insulated parapet wall type CZ
- 3 Metal sheet for making good roof finish
- 4 Angled fixed post
- 5 Couvertnet EWIS with insulating plate
- 6 Fixing
- 7 Flat roof covering
- 8 Parapet wall



Fixing to parapet wall using shoe Z

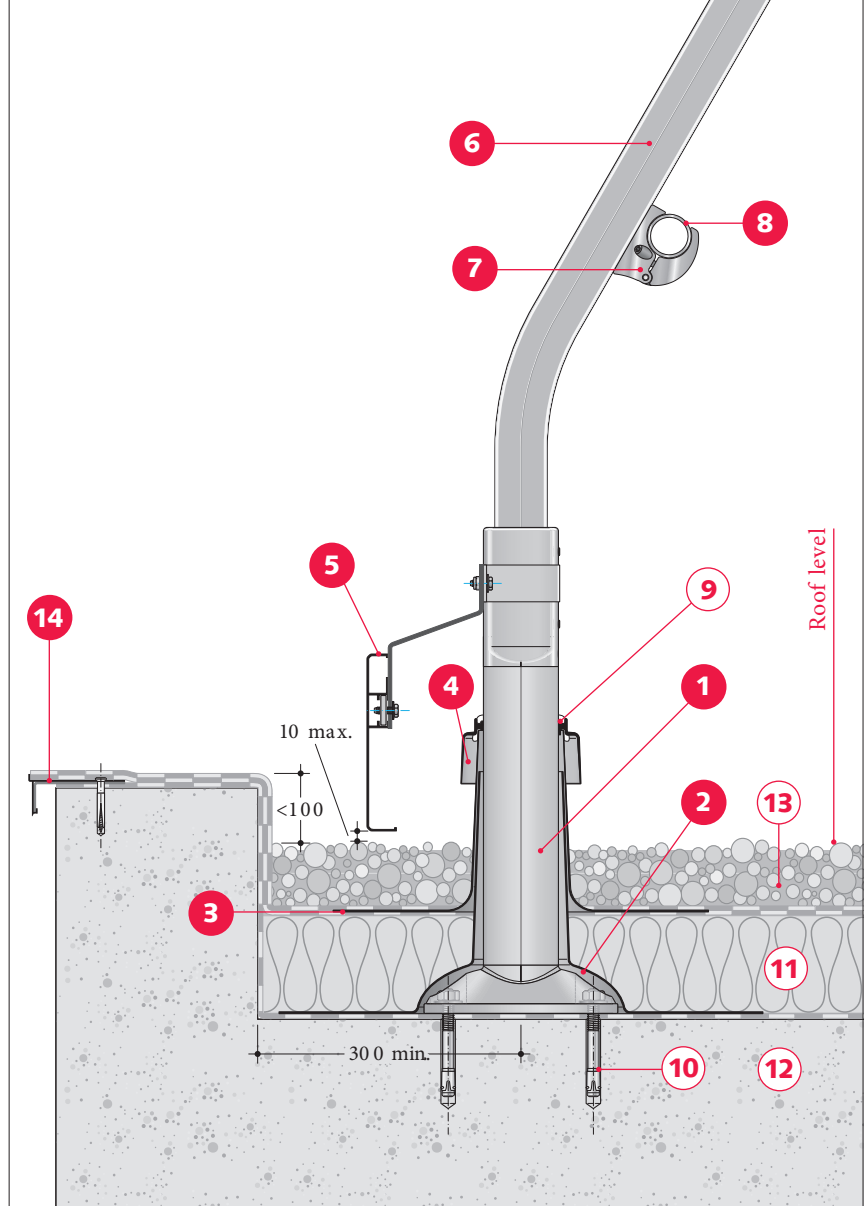
- 1 Shoe Z
- 2 Curved fixed post
- 3 Rail Clamp
- 4 Rail
- 5 Couvertnet with rounded edges and standard raised support
- 6 Fixing
- 7 Flat roof covering
- 8 Parapet wall



Examples of use

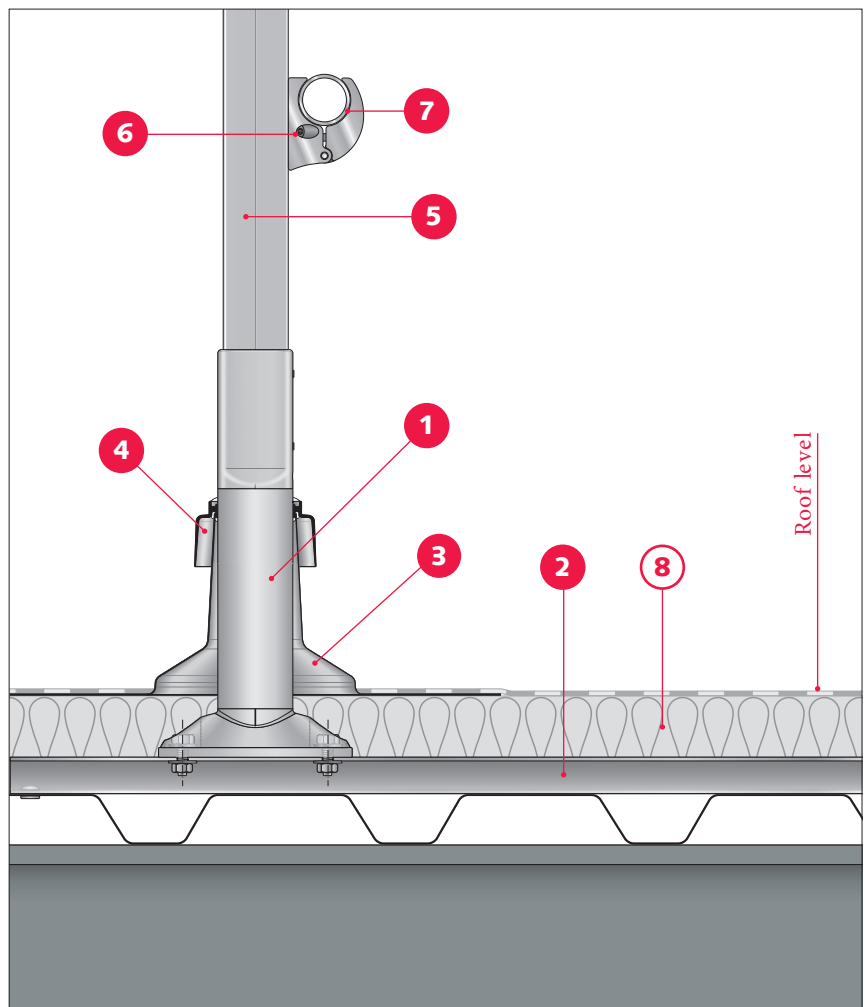
Fixing to roof slab using shoe D

- 1 Shoe D
- 2 200 lower sleeve plate
- 3 200 upper sleeve plate
- 4 Collar
- 5 Skirting
- 6 Angled fixed post
- 7 Rail Clamp
- 8 Rail
- 9 Polyurethane mastic
- 10 Fixing
- 11 Flat roof covering
- 12 Concrete background
- 13 Heavy protection, gravel
- 14 Rivnet 35/80



Fixing to steel panel with shoe BA

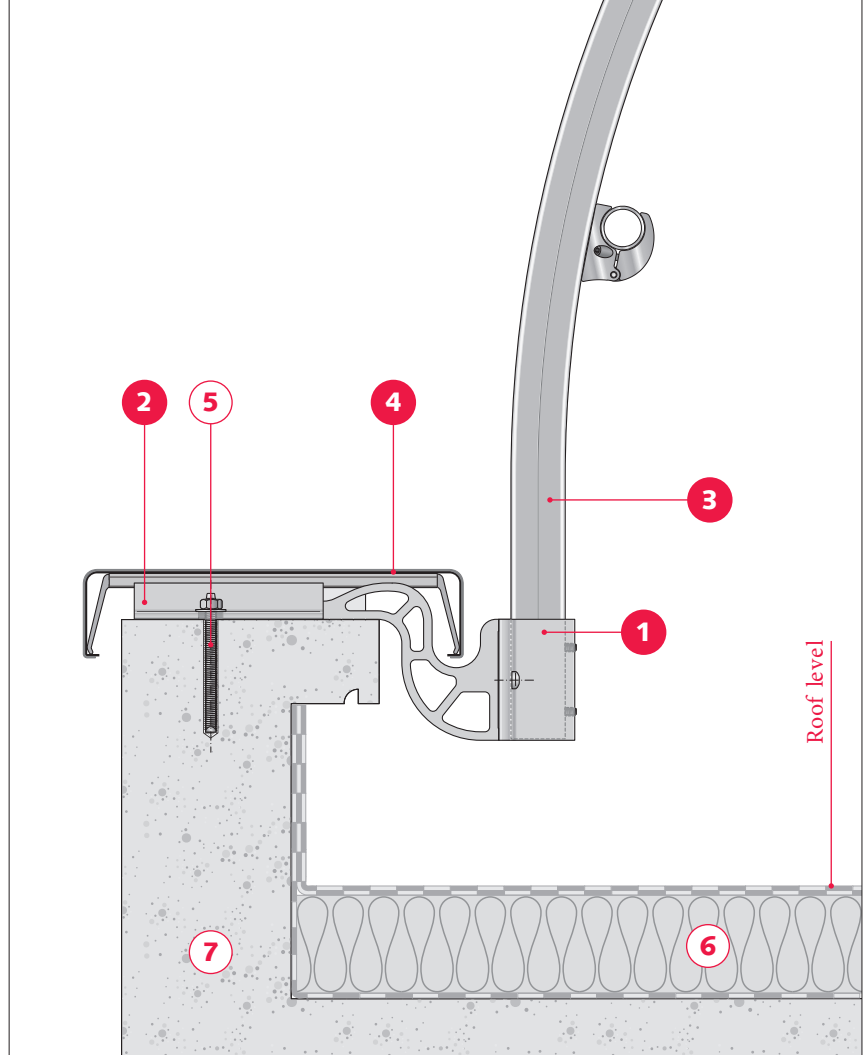
- 1 Shoe BA
- 2 Fixing plate
- 3 Lower sleeve-plate
- 4 Collar
- 5 Straight fixed post
- 6 Rail Clamp
- 7 Rail
- 8 Flat roof covering



Particular cases

Fixed Barrial with offset shoe Z

- 1 Shoe Z
- 2 Offset piece
- 3 Curved fixed post
- 4 Couvertnet with rounded edges and standard raised support
- 5 Fixing
- 6 Internal insulation
- 7 Parapet wall

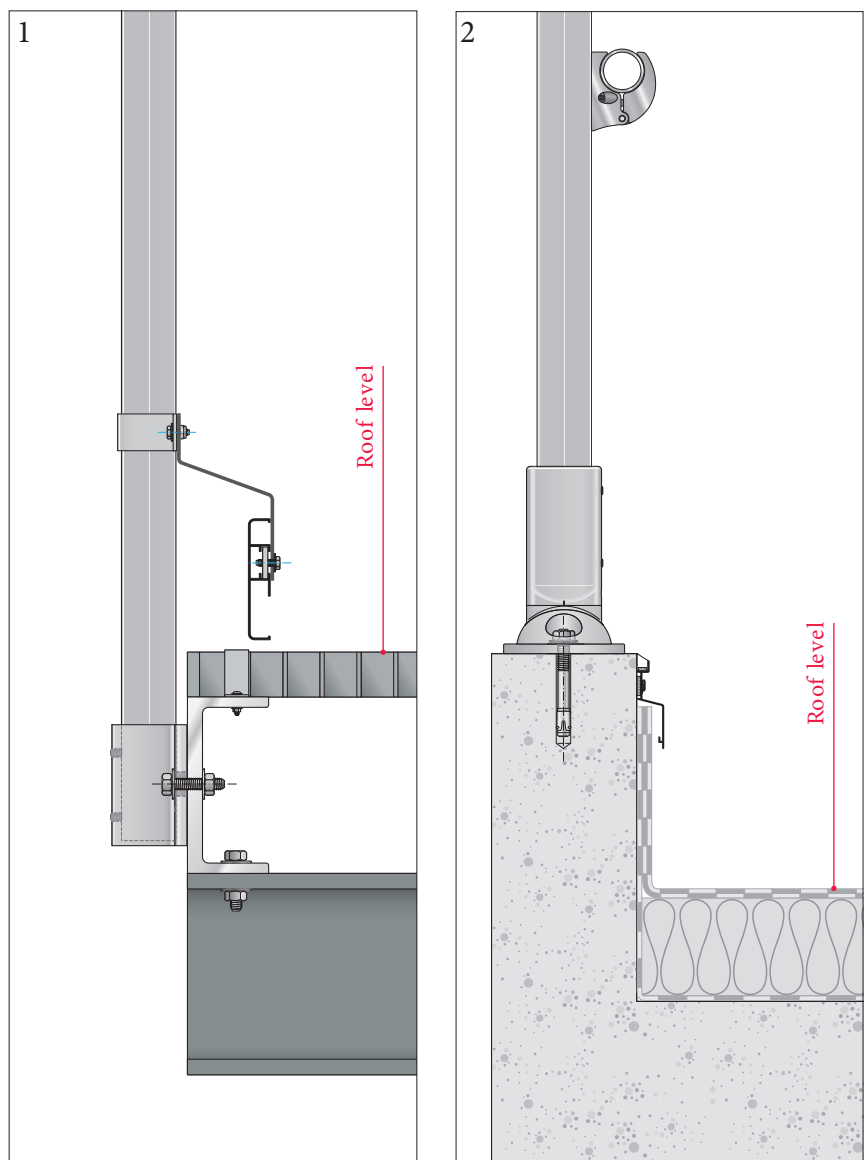


Applications in an industrial environment

Barrial can also be used as a safety railing in an industrial environment, for example on gangways or mezzanines.

Examples of use:

- 1) Fixing to the outside of the wall using shoe A5 and 100 mm skirting
- 2) Fixing to parapet wall using shoe M
Please ask for our advice!



Regulations, standards and tests

What does the law say?

All employers have statutory and common-law obligations in relation to the health and safety of their employees and premises.

The Health & Safety at Work Act 1974 places an obligation on employers to take reasonable care of the health and safety of not only himself but also those around who may be affected by his acts or omissions.

The Management of Health and Safety at Work Regulations 1999 place an obligation on employers to assess risks and where necessary take action to eliminate or control the risks.

The Workplace (Health, Safety and Welfare) Regulations 1992 and The Construction Health Safety and Welfare Regulations 1996 cover all aspects of the workplace and construction sites respectively, including the requirement to ensure that all areas where people could fall from a height over 2 metres are properly guarded or covered.

The HSE has introduced new regulations on “Working at Height”. They were introduced in April 2005. The main aim is to avoid working at height if possible and where it cannot be avoided to use the best practicable means of ensuring the safety of those working at height.

The Work at Height Regulations have changed the meaning of working platforms, which have traditionally been understood to mean a fully-boarded platform with handrails and toeboards. A working platform can now be virtually any surface from which work is carried out, such as a roof.

As roofs require maintenance work and are furthermore increasingly used for the installation of machinery (ventilation, solar panels, etc.), which also involves maintenance work, it is the duty of the owner and of the planning supervisor to allow the technical arrangements needed to prevent falling from height.

Fall restraints and arrest equipment, such as safety lines, harnesses and safety nets, should only be considered as a last resort when no other means are reasonably practicable. They should only be used and erected by trained operatives and given regular inspections.

Collective control measures should always take priority over personal control measures. Collective measures protect more than one person at any one time, e.g. scaffolds, airbags, nets etc. and they are usually passive (i.e. they require no action by the user to work effectively).

The Barriall safety railing is a permanent collective protection system that meets all of these statutory constraints.

Standards and testing

Barriall has been developed on the basis of two main European standards:

EN 14122-3 (Machine safety – August 2001): this standard specifies that a safety railing must be installed wherever it would be possible to fall from a height greater than 500 mm. The materials used must, by their nature or by means of additional treatment, be capable of withstanding the corrosion induced by the ambient atmosphere.

EN 13374 (Temporary edge protection systems – June 2013): this standard describes the tests on self-supporting railings, frequently used in the building industry. It also requires, in particular, more extensive static loading tests.

In order to guarantee the highest levels of safety, the entire Barriall has been tested by reference to the most stringent criteria in each of these two standards (see diagram “Static loads”).

The tests are carried out by two independent accredited bodies:

- CEBTP (Lyon)
- DEKRA EXAM (Bochum)

Sizing of the railings

The new British Regulations require that handrails have a minimum height for construction work of 950 mm, increased from 910 mm in the old regulations. Where existing 910 mm hand-rails are fixed in place they can remain at that height until they are changed. Any gap between the top rail and any intermediate rail should not exceed 470 mm.

Toeboards shall be suitable and sufficient to prevent the fall of any person, or any material or object, from any place of work. (Source: HSE, Q/A on the Work at Height Regulations 2005).

Barriall sizing is above regulation requirements, since it is designed by reference to the most stringent criteria of the two above European standards (see diagram “Sizing”).

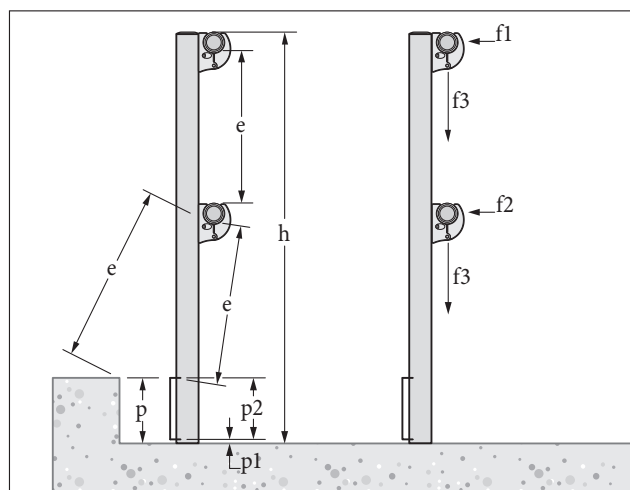
Load-bearing structure

The load-bearing structure must be designed to withstand the loads applied to the railing (see diagram „Static loads“).

Fixings

In order to comply with the standard, the railings must be fixed using fixings that are suitable for the background. Seek advice from your fixings manufacturer, showing him the table of Barriall forces, which can be downloaded from www.danialu.com.

Sizing		
	EN ISO 14122-3	EN 13374 category A
h	1.100 mm min.	1.000 mm min.
e	500 mm max.	470 mm max.
p1	10 mm max.	20 mm max.
p2	150 mm	not stated
p	not stated	150 mm

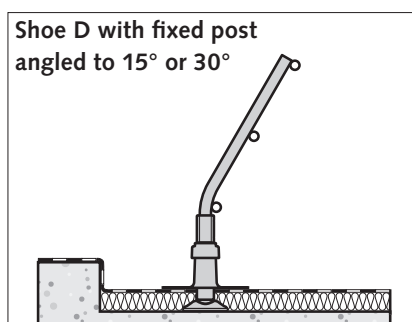
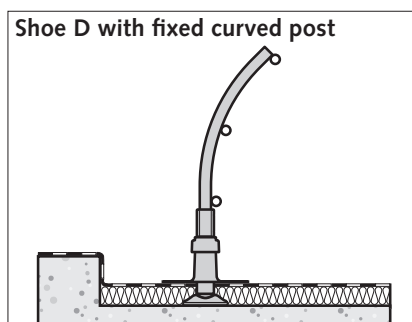
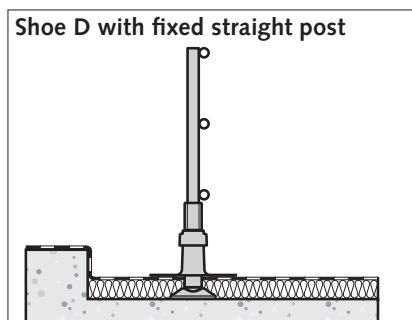


Static loads

	EN ISO 14122-3	EN 13374 category A
f1	30 daN/m at the position of the post and in the middle of the handrail deformation < 30 mm	30 daN at the weakest point deformation < 55 mm
f2	not stated	30 daN at the weakest point deformation < 55 mm
f3	not stated	125 daN at the weakest point No deformation limit

Specification clauses

dani alu can provide you with specification clauses for any configuration. The following is an example using shoe D:



Barrial fixed – Fixing to roof slab using shoe D

dani alu (phone 0033 (0) 4 78 87 12 48, www.danialu.com) Barrial aluminium safety railing system for flat roofs inaccessible to the public, positioned on the roof and fixed to the roof slab, or technically equivalent.

The system shall comply with standard EN ISO 14122-3, be covered by both static and dynamic test certificates issued by an accredited body, and be certified by the European GS Mark.

In compliance with the standard, the top rail, or handrail, shall be positioned 1100 mm above the roof level. The gap between 2 rails shall not exceed 500 mm.

Height of parapet wall: mm (state the height).

Distance from parapet wall: mm (state the dimension).

Thickness of chippings: mm (state the thickness).

Type of shoe: shoe D

The safety railing shall be positioned on the flat roof and shall be fixed to the roof slab using a shoe type D, comprising:

- an aluminium base plate coated with bituminous primer
- a thermoplastic elastomer collar, forming a flashing

Type of post: The posts shall be type (state the type of post).

- straight fixed
- curved fixed (radius 1000 mm)
- fixed angled at 15°
- fixed angled at 30°

The posts shall be fitted with a groove to allow the insertion of a varying number of lugs, for use as fixing points and to allow the horizontal and vertical adjustment of the rails.

Rails: Number of rails: (In order to determine the number of rails, use the Barrial configurator at www.danialu.com or seek our advice).

The handrail (or top rail) and the intermediate rails shall be formed from the same profile, of a maximum diameter of 35 mm. All the rails shall be positioned inside the posts. The rails shall be connected together with double-spigot junction pieces, with the same finish as the rails, to ensure perfect continuity no thicker than the rail profile. The fixing of the junction piece shall not be visible.

At corners, the rails shall be connected together using variable angle corner pieces with the same finish as the rails. The corner pieces shall be fixed using an expansion system, without drilling the rails.

Skirting (obligatory if the parapet wall is less than 150 mm high):

The railing shall have an extruded aluminium skirting 180 mm high, fixed to expand and freely using tightening lugs and cleats. The system shall include factory-prefabricated junction and corner fittings.

Bolts: All bolts and screws shall be in stainless steel (nickel-free)

Finish: The finish shall be aluminium (state the finish).

- untreated
- Danilac powder coated, RAL colour of choice (state RAL No.).

Detailed setting out drawing: A detailed setting out drawing shall be provided by the manufacturer and submitted for the Architect's approval before the system is installed.

Installation: Installation shall be carried out in accordance with the manufacturer's instructions.

Quantities:

Length of parapet wall to be protected: (state the quantity).

No. of angles: (state the quantity).

Price per m as specification (including angles): (state the quantity).

Download the table of forces on the fixings, standard sections and sample specifications to suit your project from www.danialu.com

Barrial®

Order Request for quotation
 (Tick the options required)

To request a quotation, please give the following information. In the case of an order, please enclose also a measured survey or a roof plan.

Date : _____

Company (Address/Company stamp): _____

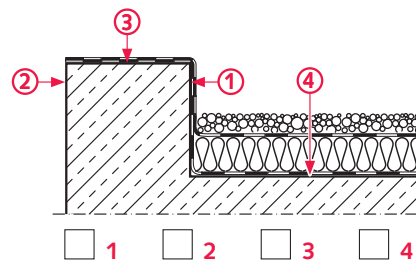
Contact: Mr/Mrs _____





Telephone : _____ Fax: _____



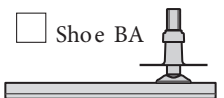
Mobile: _____ E-mail: _____

Type of project new refurbishment **Stage of project** design on site

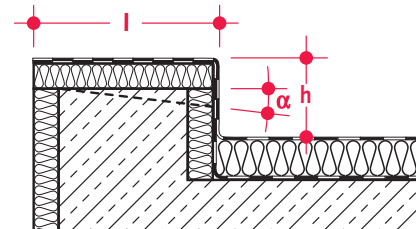
Method of fixing



1 Inside parapet wall Shoe A 
 2 On the external wall Shoe Ae 
 Shoe A5 
 4 On roof slab Shoe D 

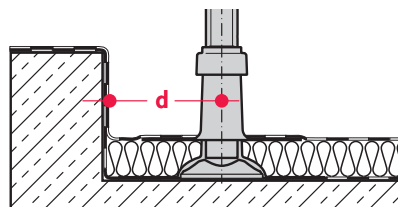
3 On parapet wall Shoe Z 
 Shoe M 
 5 On steel panel roofing Shoe BA 

Dimensions and characteristics of the parapet wall



Slope $\alpha = ^\circ$ _____
 Width l = mm _____
 Height h* = mm _____

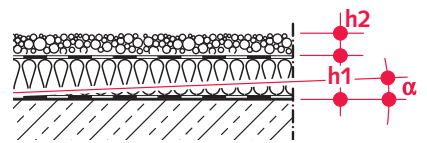
For fixing to roof slab or steel panel roofing: Distance from the inside of the parapet wall to the centre line of the shoe



Size d = mm (270 min.) _____

* In the absence of a parapet wall, or if it is low (< 100 mm), a skirting will be needed.

Characteristics of the roof slab



Insulation h1 = mm _____
 Chippings thickness h2 = mm _____
 Slope $\alpha = ^\circ$ _____

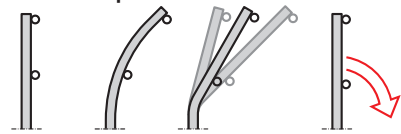
For steel panel roofing:
 type of ribs _____

Insulation:

internal width = mm _____ external = mm _____ on parapet wall = mm _____

In the case of a parapet wall of a special shape, draw a section on a separate sheet.

Choice of post



straight curved angled folding

 15° 30° 45°

Finish

Unfinished aluminium
 Danilac powder coating
 to RAL colour: _____

Quantities

Length of parapet wall (m)* _____
 No. of roofs _____
 No. of angles _____
 *(external dimension)