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GENERAL QUESTIONS

1. Which are the advantages of a rainscreen system?

- o Low water absorption
- o Zero maintenance cost
- o Easy assembly / disassembly
- o Easy combination with other materials
- o High mechanical strength
- o Excellent durability
- o Energy savings and elimination of humidity

2. What are CUPACLAD advantages?

Our main advantage is that slate is a natural, affordable and beautiful product. CUPACLAD can transform a normal construction into an iconic building. It can be combining with other materials (wood veneer, glass, ...). Besides CUPACLAD is easy to assembly, low maintenance cost and excellent durability.

CUPA PIZARRAS is the world leader in natural slate. We produce one third of the slate in the world. No other company has our production capacity.

The slates used for our CUPACLAD system are carefully selected for their technical properties from our 16 quarries.

3. Why did we develop CUPACLAD?

CUPACLAD® rainscreen cladding systems have been developed from the necessity of adapting natural slate to new architectural trends and styles that demand more sustainable and modern solutions.

4. When did we develop CUPACLAD?

CUPACLAD concept was born in 2006, and CUPACLAD systems were totally developed with metallic substructure at the end of 2015.

5. What criteria should be considered when designing a ventilated façade?

- o The designer must study the design of the facade considering the dimensions of the slates and modulate the project considering the opaque cloths and the facade hollows.
- o Settings will always be planned at the corners
- o The structural joints or movement joints of the building should always be respected, making substructure and plate independent on both sides.

6. What certificates does the CUPACLAD have?

The CUPACLAD systems have been awarded numerous certificates such as; BBA (British Board of Agreement) this certificate highlights the long-term optimal performance, and the ETA (European Technical Assessment) highlights the technical evaluation of the product features. Additionally, our systems have successfully exceeded the impact and wind tests done by the CSTB, Centre Scientifique et Technique du Bâtiment. Furthermore, the slate used in our Façade Special Selection has been endorsed with the highest European quality standards: the CEE marking, the French FE regulations, the Belgium ATG and the American ASTM.

7. Can CUPACLAD be installed in any surface: wood, concrete, masonry...?

Yes, but depending on the surface you should fix CUPACLAD to the structural area of the façade. The supporting wall must ensure the stability of the building. The wall must be sufficiently stable to support not only the weight of the cladding but also consider the wind loads transmitted through the substructure.

8. Could CUPACLAD be installed in specific jobs due to the impact strength?

You would not have any problems. CUPACLAD hold up well against impact. When tested for resistance to hard and soft body impacts, and using an 800 and a 1000 mm spacing between the vertical rails and the wall brackets respectively, both CUPACLAD 101 and 201 systems were found to be suitable for use in Use Categories III to IV, as defined in Table 4 of ETAG 034: 2012, Part 1.

9. What is the wind resistance in an area "x" or a wind load "y"?

It depends on the location of the building and local regulations. The CUPACLAD 101 system withstands up to 6800 Pa with no breakage or damage occurring on the test sample by visual inspection. The CUPACLAD 201 Vanguard system withstands up to 3400 Pa (maximum power provided by the equipment), with no breakage or damage occurring on the test sample by visual inspection.

10. Would it be possible to install CUPACLAD in a 20-story building?

In Europe, you will not have any problems with the system coping with the wind resistance.

11. Which is the recommended thickness for the insulation material?

It depends on the project, this is, the situation, climate, ...

12. Which is the minimum width of the air cavity in a rainscreen system?

The clear cavity between the back of the panel and the substructure wall (or insulation if installed on the substrate wall) must be at least 20 mm.

13. How does CUPACLAD perform in extreme sunlight exposure and high temperatures?

Extreme weather and temperature changes are not a problem for our CUPACLAD systems. The systems have an air chamber which acts as a climate buffer and absorbs the temperature.

14. Can any type of slate be used with the CUPACLAD systems?

Unfortunately, not. The natural slate is carefully selected for the CUPACLAD systems and specific quality control tests are carried out to ensure high quality and exceptional performance.

The special selection ensures a quick and easy installation as only flat, smooth slates are selected. Furthermore, the slate is delivered with pre-holes to suit your chosen CUPACLAD design.

15. How adjustments are made on CUPACLAD façades?

To facilitate its adaptation the slate of CUPACLAD systems can be cut both transversely and longitudinally. The cut can be done with powered scissors or special guillotine for cutting slate.

16. What happens if the water enters thorough the joints?

Nothing. The joints between the elements of the coating are usually open, allowing airflow and improving ventilation. Thanks to this ventilation produced inside the chamber due to the chimney effect, water particles that may occasionally enter are removed, and the inner face of the coating remains dry.

**17. What is the size of the vertical joints between slates?**

The size of the vertical joints between pieces of slate in CUPACLAD systems 101 and 201 shall be as small as possible, depending on the squareness and size tolerances of the slate pieces.

18. What is the behavior to fire in CUPACLAD rainscreen cladding system?

The slates and aluminum support systems are classified as “non-combustible” in relation to the national Building Regulations.

19. Can CUPACLAD be used inside buildings?

Yes. It can be used inside buildings. Below, an example of the Skagen Museum in Denmark.

**20. Can the product be used as soffit?**

CUPACLAD has been designed for vertical installation. However, it is also true that we have installed CUPACLAD on an interior ceiling as a decorative element. Therefore, it could be possible to use as soffit.

**21. How heavy are the systems per square meter?**

- o CUPACLAD 101 Logic: $\leq 36 \text{ kg/m}^2$
- o CUPACLAD 101 Random: $\leq 39 \text{ kg/m}^2$
- o CUPACLAD 101 Parallel: $\leq 35 \text{ kg/m}^2$
- o CUPACLAD 201 Vanguard: $\leq 30 \text{ kg/m}^2$

22. What is the slate thickness?

The thickness of CUPACLAD slate is 7,5 – 7,65 mm (nominal thickness)

23. What is done with the hole left by the scaffold in the façade?

First, we put the slate and after, we fix them with screws. It's the same procedure as for the replacement of a broken piece.

LOGISTICS QUESTIONS**24. How many pieces are there in one crate of each CUPACLAD system?**

Depending on the system, each pallet will contain different number of pieces.

	Nº PIECES/PALLET	SQM/PALLET
CUPACLAD 101 Logic	650	39
CUPACLAD 101 Random	340 (50x25) 340 (50x20) 570 (50x15)	
CUPACLAD 101 Parallel	400	28
Cupaclad 201 Vanguard	250	39

25. How many sqm can fit in a full load (full truck) of each CUPACLAD system?

Depending on the system, a full truck could load between 567 to 938 sqm.

	SQM/TRUCK	Nº CRATES/TRUCK
CUPACLAD 101 Logic	778	20
CUPACLAD 101 Random	567	21
CUPACLAD 101 Parallel	783	28
Cupaclad 201 Vanguard	938	25

INSTALLATION QUESTIONS**26. What is the CUPACLAD installation process?**

Below 2 link videos regarding installation:

o CUPACLAD 101 system installation video: <https://www.youtube.com/watch?v=aD6g9qPooCo>

o CUPACLAD 201 system installation video: <https://www.youtube.com/watch?v=F1M6PwAMGNc>

Another link video explaining the slate production process:

o <https://www.youtube.com/watch?v=pO2IgNco8kl>

27. What is the estimated time of installation?

In our initial in USA CUPACLAD 101 projects, construction companies have installed 0,548 m2/hour per man hour. This time includes the installation of all components from the wall sheathing out (brackets, insulation, verticals, horizontals, slate and all flashing and finished). This number should increase with experience as in Europe our crews can install 30% to more product per man per hour.

In any event, CUPACLAD 201 should be installed 50% faster that CUPACLAD 101.

28. Is there flexibility in the CUPACLAD 101 Random design pattern? Can we design when a "thick" or "thin" course happens or is it a fixed "random" pattern?

Yes, there is flexibility in the 101 Random design pattern. We can randomize the (50x25, 50x20 and 50x15) courses on-site ourselves. **2.**

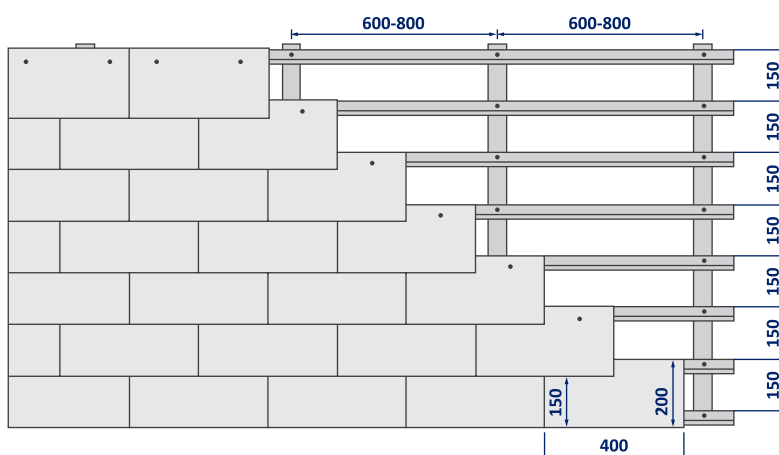
29. Do any of the slates come pre-drilled?

Yes, all the CUPACLAD 101 serie (101 Logic, 101 Random and 101 Parallel) come pre-drilled. 201 Vanguard goes with non pre-drilled slate because they are fixed with clips to the horizontal profile, not screws.

TECHNICAL QUESTIONS

30. What is the distance between vertical profiles?

The distance between vertical profiles is 600 mm to 800 mm. It would depend on the wind resistance.



31. What is the maximum separation between the horizontal profiles on each system?

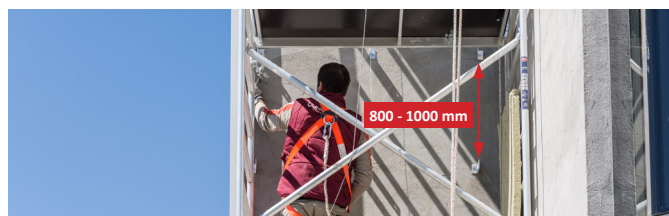
- o CUPACLAD 101 Logic: the separation between the horizontal profiles is 150 mm
- o CUPACLAD 101 Random: the separation between the horizontal profiles is 100, 150 and 200 mm.
- o CUPACLAD 101 Parallel: the separation between the horizontal profiles is 200 mm
- o CUPACLAD 201 Vanguard: the separation between the horizontal profiles is 260 mm

32. What is the length of the horizontal and vertical profiles?

- o Horizontal profile CUPACLAD 101 is 3,6 lm
- o Horizontal profile CUPACLAD 201 is 6 lm
- o Vertical profile is 6 lm

33. What is the distance from one bracket to other?

The vertical distance between 2 brackets is 800 mm to 1000 mm.



FIXED POINT

Should be fixed over a resistant part at the building structure



SLIDING POINT

- Sliding point absorbs dynamic horizontal wind loads
- Allows the expansion of the vertical profile

34. What type of brackets must we use?

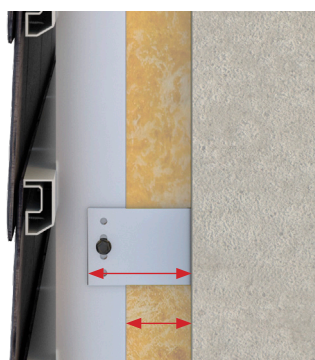
It would depend on the insulation that has been specified. We supply brackets from 75 mm to 250 mm long.



SLIDING POINT



FIXED POINT



THICKNESS INSULATION

BRACKETS	Nº PER BOX
60x40x75	380
60x40x100	310
60x40x125	270
60x40x150	240
60x40x175	220
60x40x200	200
60x40x225	190
60x40x250	150

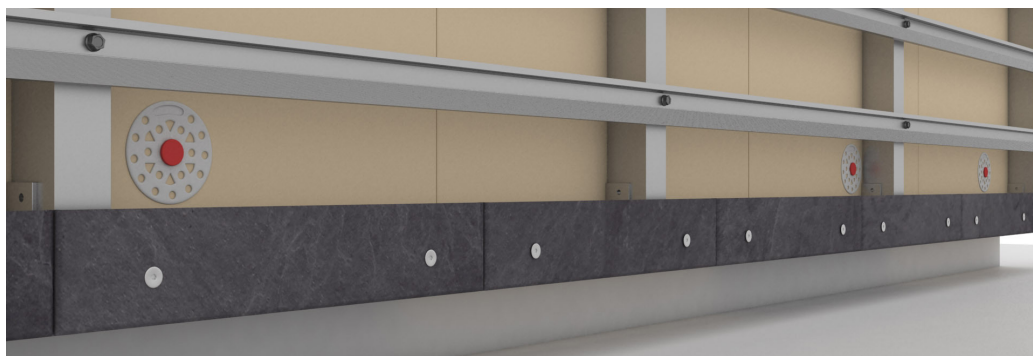
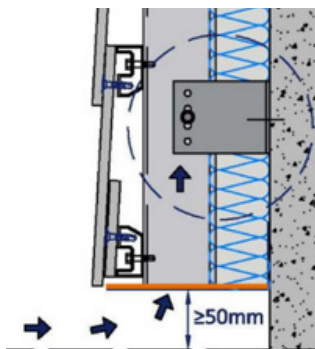
BRACKETS	Nº PER BOX
60x40x75	380
60x40x100	310
60x40x125	270
60x40x150	240
60x40x175	220
60x40x200	200
60x40x225	190
60x40x250	150

35. How do you solve a façade opening to avoid capillarity problems?

Our recommendation :

- o The distance between the floor and the substructure of the cladding must be at least 50 mm or more.
- o The installation of a perforated profile is recommended to ensure ventilation and prevent insects / small animals from getting up.

The wall of this space must be covered by an impermeable barrier (bituminous, epdm, ...) to avoid the effects of capillarity. This solution should be recommended by a specialist.

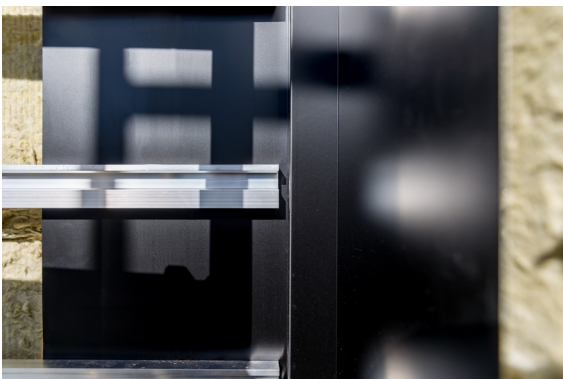
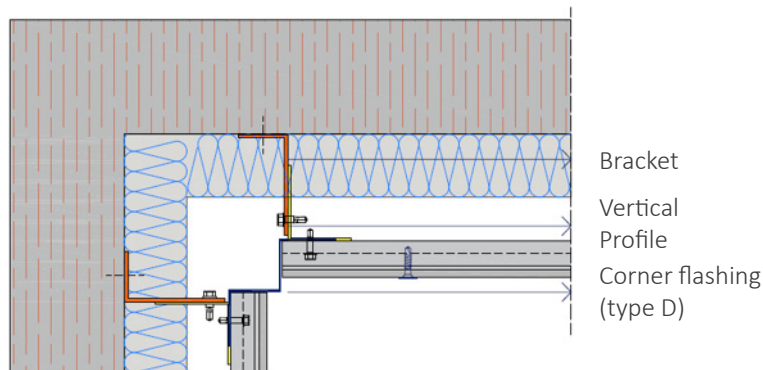
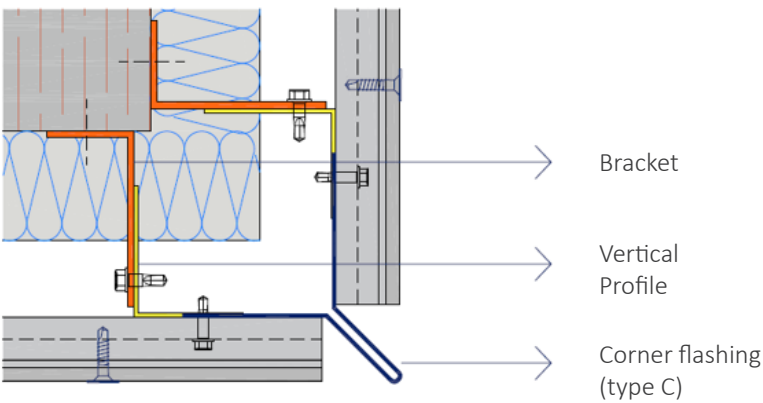
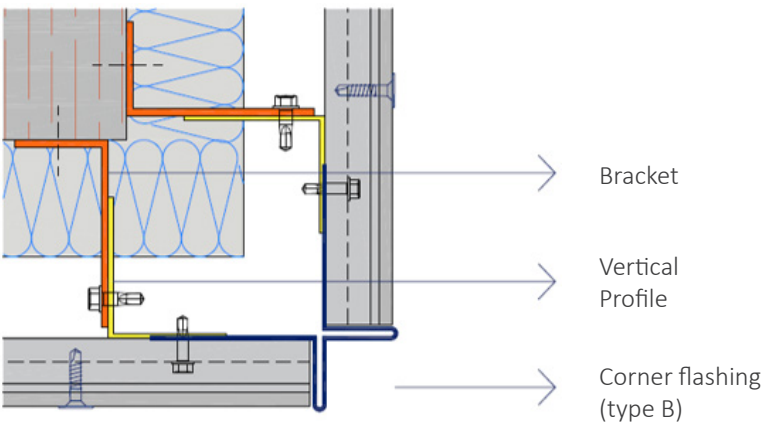
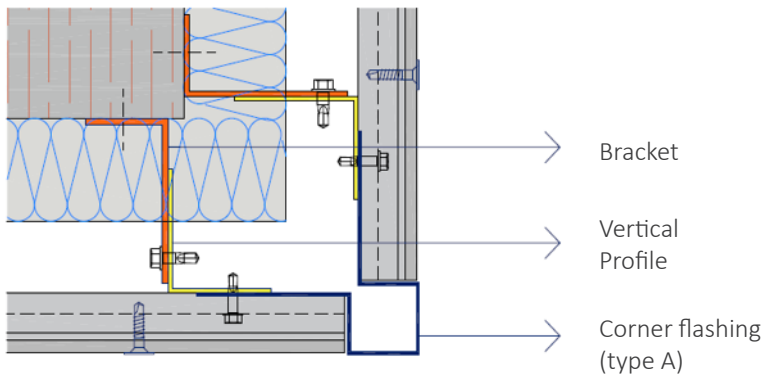


36. How do we solve the top finish of the façade and external window reveal?

We solve it with flashings that can be produced in galvanized steel, aluminum or zinc, and are used for edges, window frames and other sections of the cladding.

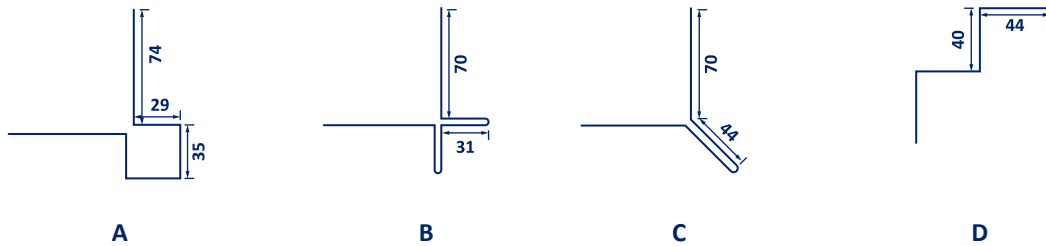
EXTERNAL WINDOW REVEAL**TOP FLASHINGS****37. How do we place corner flashing?**

- o Corner flashing must be placed behind the horizontal profile with a self-drilling screw. If there is a vertical profile, it will be fixed between vertical and horizontal profile with this screw.
- o The flashing is fixed with a screw (self-drilling). It could be the same that we use to fix vertical profiles to brackets.
- o We don't provide flashings, but we can send drawings and images of installation.



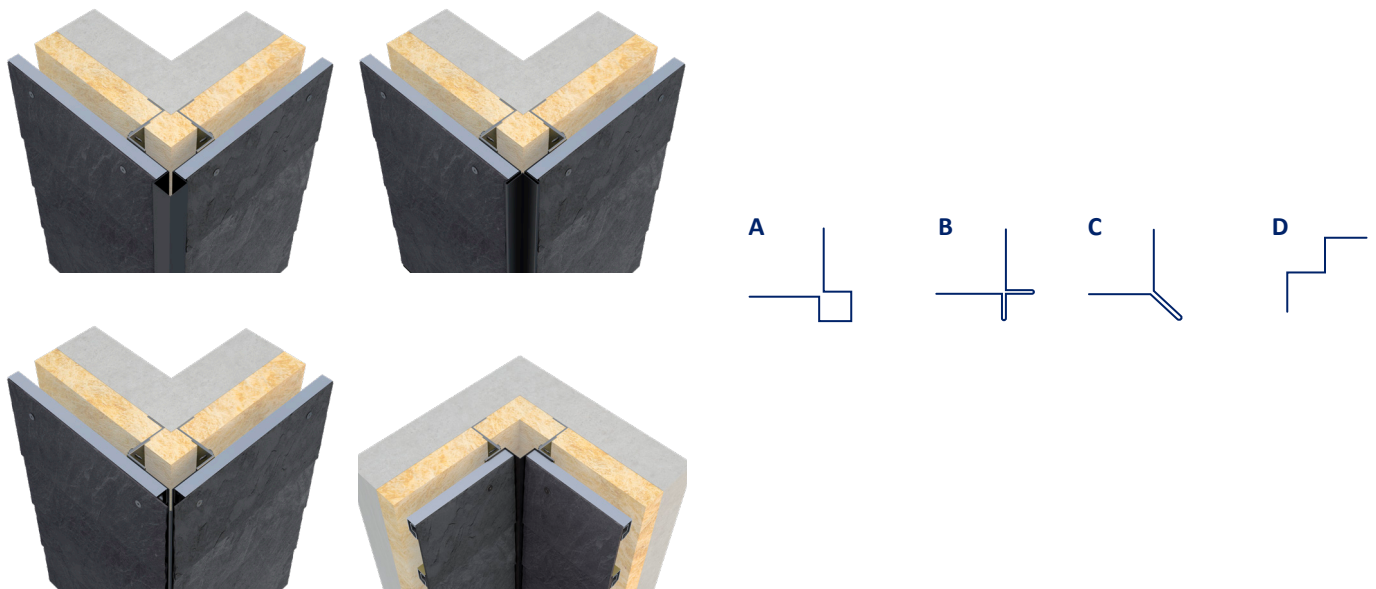
38. How are the dimensions of corner flashings?

It depends on the project, but these could be approximately the dimensions in mm:



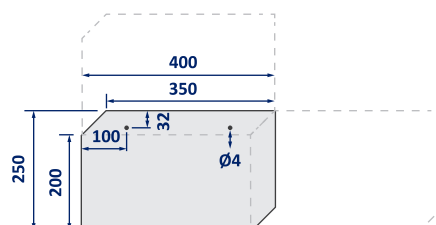
39. Can part of the slate fly or should it be fully supported in the profile?

The profile can fly a little in the corners on the horizontal profile which is anchored. The slate ends against a corner or side shot profile.



40. How do we place slate in CUPACLAD 101 Parallel?

There is an overlap in horizontal and vertical direction between slates (50 mm)



41. How CUPACLAD façade ventilated system moves?

Below the explanation regarding the resistance of CUPACLAD against temperature variations (aluminum / slate expansion):

1. The slate tile CUPACLAD is fixed only by the top (2 screws), not by the 4 sides. This allows slate greater freedom of movement.



2. The courses are installed overlapped 5 cm. That is, the top row could slide over the bottom row, so the vertical movement of the slates are not restricted.



3. Slates are placed next to each other, there is always a small joint, which also allows some degree of freedom of movement. The cutting of the slates is not made straight, but rather bevelled.

4. In the hydrothermal tests carried out on CUPACLAD following the ETAG 034 Part 1, April 2012 Edition, in which the conditions of temperature and humidity have changed cyclically (85 cycles in total), the result is as follows:

CUPACLAD subjected to cycles of heat changes at 70 ° C until rain at 15 ° C, and at cycles of 50 ° C to -20 ° C, suffered no faults.

42. What is the reason that the profiles of the system CUPACLAD 101 are C-shaped?

The reason for making a C is to use the slash to insert the self-drilling stainless screw (the head of this screw is different of the head of the slate's self-drilling screw) to prevent the screw from touching the slate. The basic form to use as horizontal profile is a tubular profile but our engineers have designed this profile to improve our system 101 CUPACLAD.



43. How do we replace a slate in each system (101) and (201)?

o CUPACLAD 101: You must cut the screw that was supporting the broken slate, install a new slate and drill the new slate with two screws. These two new screws would be visible so to avoid the contrast you should use black screws.



o CUPACLAD 201: You should open the clip and replace the broken slate with a new one.

