

HCUPACLAD

NATURAL SLATE RAINSCREEN CLADDING SYSTEMS



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The CUPACLAD® rainscreen cladding systems have been developed from the necessity of adapting natural slate to new architectural trends and styles that demand a more sustainable approach. The slate used in our systems is a natural product carefully selected for its durability and characteristics from our 16 quarries. The CUPACLAD® systems combine the efficiency of ventilated cladding and the properties of natural slate offering a competitive and sustainable alternative for all cladding requirements.



NATURAL SLATE RAINSCREEN CLADDING SYSTEMS

Developed alongside Danish architects and contractors, CUPACLAD® systems offer a revolution in cladding applications with natural slate. The systems offer a new, durable, sustainable and easy to install alternative with unique character.

The CUPACLAD® range offers a number of alternatives guaranteeing a perfect adaptation for a variety of projects.

The fasteners used for the CUPACLAD[®] systems have been developed following an in-depth design process to ensure a quick and easy installation.

CUPACLAD[®] offers a new world of design possibilities using natural slate.



Modern, contemporary design.

Lightweight and versatile.



NATURAL SLATE -A UNIQUE MATERIAL

Slate is a natural product of unparalleled technical properties that adds value to any project.



Durability

Used since roman times, natural slate is long-lived, remarkably durable, fire resistant and naturally waterproof. Its aesthetic and technical properties remain unaltered, keeping the elegance and character for much longer than any man-made alternatives.

Environmentally friendly

Each slate is handcrafted by our skilled "splitters." No additional treatment is required. Natural slate is only subject to extraction and mechanical transformation. Unlike man-made materials, there are no chemical or heating processes involving slate. The low impact processing and unparalleled durability of natural slate result in an extremely low carbon footprint.



Character

Characterized by its natural color and individual texture, natural slate is a material that can enhance the value and beauty of any property. Every slate is unique giving an unparalleled character to any project remaining unaltered for many years.

EXCLUSIVE SELECTION

of Natural Slate for The CUPACLAD® systems

The slate used for our systems is a natural product carefully selected for their technical properties and character from our 16 quarries. We carry out stringent quality control processes to guarantee its exceptional performance for all types of cladding design requirements. Our **Exclusive Cladding Range** ensures a quick and easy installation due to our selection process for regularity and flatness (against other standard roofing selections). They are also drilled in a specific position depending on the CUPACLAD® system of choice.

Even the packaging, smaller in size and weight, is designed for greater ease and speed during installation.

CUPA PIZARRAS has been quarrying natural slate for more than 120 years. Our quality control experts choose the perfect slate for each system based on wind load and impact criteria to guarantee its performance as a cladding material. Our **Exclusive Cladding Range** meets and exceeds the highest American quality standards.



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CUPACLAD® - THE SUSTAINABLE CLADDING

CUPACLAD® natural slate systems are the perfect choice for an efficient and sustainable cladding.

Due to the nature of the slate production process, our CUPACLAD cladding has a lower environmental impact than other man-made alternatives. 5 times less CO2 emissions than fiber cement, 324 times less water absorption than zinc cladding and 10 times less energy consumption than clay.



*Life-cycle assessment, studies all the stages of a product's life from production to recycling. Data calculated for 1 square meter in a year. Sources: CUPACLAD® slate (http://goo.gl/K5ILx8); Fibre cement (http://goo.gl/OSjeV5); Zinc (http://goo.gl/EgWh6g); Terracotta (http://goo.gl/Y03c9U).



LIFE-CYCLE ASSESSMENT

Life-cycle assessments allow measurement of the environmental footprint from a cradle to grave perspective. These studies confirm CUPACLAD real, natural slate to be a far more sustainable option than man-made and processed products.



THE EFFICIENCY OF A RAINSCREEN CLADDING

Rainscreen cladding is a construction solution widely used and popular amongst architects and developers worldwide.

Ventilated facades are now considered the most efficient system for building envelopes or building envelope construction. The combination of a ventilated system together with an insulation system gives numerous advantages in terms of thermal and acoustic properties. It **avoids thermal bridges and condensation issues.**

A rainscreen cladding system consists of a load bearing wall, a layer of insulation and a covering material fixed to the building with the help of a supporting structure. This system creates a gap between the insulation and covering material called an air cavity.

For optimum performance the system must allow constant air circulation through the cavity creating a natural convection process. Warm air inside the cavity is lifted and released to the exterior resulting in a continuous ventilation cycle. This so called "chimney effect" is one of the advantageous characteristics of a rainscreen cladding.



MAIN ADVANTAGES:



Rainwater penetration is greatly reduced and any moisture is removed through the constant ventilation, reducing the risk of any condensation.



The air cavity avoids temperature variations resulting in less pronounced structural movements. This reduces the risk of cracks and other structural issues.



Thermal efficiency is increased due to the cooling effect in summer and greater heat retention in winter.



Durability

The cladding material is kept dry due to continuous ventilation. Many issues related to humidity (efflorescence etc...) are reduced resulting in a longer life span of the installation.

CUPACLAD® SYSTEMS

CUPACLAD® systems have been developed to be able to adapt to any kind of project combining alternative fastening methods and slate formats.

201 SERIES 101 SERIES Visible Fastening Invisible Fastening 101 Parallel 101 101 201 Random Vanguard Logic Simple and balanced Modern and efficient Dynamic and creative Uniform and regular P.09 P.10 P.11 P.19

ACCURACY AND RELIABILITY OF INSTALLATION

MAXIMUM FIRE

RESISTANCE

COMFORMITY WITH REQUIRED

TECHNICAL STANDARDS

INVISIBLE FASTENING SYSTEMS

101 SERIES

CUPACLAD[®] 101 series features invisible fasteners, making the slate the main feature of the cladding.



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The slate is fastened using our specially designed self-tapping screws to ensure optimal installation while remaining completely invisible to minimize design impact.

Screws are made of stainless steel with a large flat head that enables an easier and more secure installation.

CUPACLAD® 101 Logic

SIMPLE AND BALANCED



CUPACLAD[®] 101 *Logic* features a balanced design that highlights the unique texture and look of the natural slate.

CUPACLAD[®] **101** *Logic* system utilizes 16 x 8 slate fitted horizontally with invisible fasteners.

Slate size	16"x 8"
Nominal thickness	1/4"- 3/8"
Slates per ft²	1.67
Weight per ft² (slate)	\leq 6.14 lb/ft ²





CUPACLAD® 101 Random

DYNAMIC AND CREATIVE



CUPACLAD[®] 101 Random combines different slate sizes, creating a dynamic and unique design.

CUPACLAD® 101 Random features 20×10 , 20×8 and 20×6 slates fitted horizontally with invisible fasteners.

Slate size	20"x 10" 20"x 8" 20"x 6"
Nominal thickness	1/4"- 3/8"
Slates per ft²	1.25
Weight per ft² (slate)	\leq 6.14 lb/ft ²

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CUPACLAD® 101 Parallel

UNIFORM AND REGULAR

CUPACLAD[®] 101 Parallel features a regular design with even joints. This results in a uniform and consistent layout that highlights the character of natural slate.

CUPACLAD[®] **101** *Parallel* features 16 x 10 horizontally aligned slates fitted with invisible screws.

Slate size	16"x 10"
Nominal thickness	1/4"- 3/8"
Slates per ft²	1.43
Weight per ft² (slate)	\leq 6.14 lb/ft ²

CUPACLAD® 101 SERIES fastening method

Fastening the metal brackets

The metal brackets are installed in alternate courses on each side of the vertical profile. It is required to use both fixed point metal brackets (on the upper end of each profile) and brackets with an sliding point to allow for expansion of the profile.

Fasten the "L" shaped profiles

Fasten the vertical profiles to the metal brackets allowing at least 3/4 for an air cavity.

The vertical profiles must be perfectly level before fitting the remainder of the system components.

Installation of insulation

Choose the most suitable insulation material based on the project requirements. Install in accordance with the manufacturers recommendations.

Installing the CUPACLAD® 101 horizontal profiles

Install the horizontal battens with the vertical ones at each intersection.

The horizontal battens must be perfectly level as their position will dictate the final position of the slate. The bottom batten for the first course of slate must be inverted for proper installation.

Installing the trim

Install a ventilation flashing at the first course of the cladding and the metal flashings at single points (edges, window frames, etc).

Installing the first course slate

Cut a slate to a height of 3 1/4" approx. Fasten it inverted matching the bottom edge of the slate with the first 101 horizontal batten.

Fastening the slates with the self-drilling CUPACLAD $^{\circ}$ 101 screw

Each slate must be aligned with the upper edge of the batten and fitted with two stainless steel. CUPACLAD $^{\rm \tiny (B)}$ 101 self-drilling screws.

TECHNICAL DOSSIER | CUPACLAD® 101

TECHNICAL DETAIL CUPACLAD® 101 Logic

TECHNICAL DETAIL CUPACLAD® 101 Random

EXTERNAL WINDOW REVEAL

Α

Α

1. CUPA PIZARRAS natural slate 2. First course slate

- 3. Self-drilling CUPACLAD[®] 101 screw
- 4. Horizontal CUPACLAD® 101 batten
- 5. "L" shaped vertical profile 20 x 246. Self-drilling stainless steel screw
- 7. "Fixed point" metal bracket
- 8. "Sliding point" metal bracket
- 9. Insulation
 10. Load bearing wall
- 11. Ventilated flashing
- 12. Top metal flashing
- 13. Sill metal trim
- 14. Metal lintel trim
- 15. Metal jambs trim
- 16. Metal trim

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CUPACLAD® **101 SERIES** Logic, Random and Parallel

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VISIBLE FASTENER SYSTEM

CUPACLAD[®] 201 series is identified by the use of stainless steel visible fasteners. **The contrast between natural slate and steel gives this cladding a unique modern appearance**.

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FASTENING SYSTEM 201 Vanguard

CUPACLAD[®] 201 Vanguard stainless steel clips have been designed by our R&D department.

Every slate is fastened to the horizontal batten using two clips that remain partially visible once the system is installed.

CUPACLAD[®] 201 Vanguard

MODERN AND EFFICIENT

CUPACLAD[®] 201 Vanguard main feature is the combination of large pieces of slate and stainless steel clips; giving it the result of a clean, contemporary appeal.

CUPACLAD[®] **201** Vanguard features 24"x 12" slate fitted horizontally with visible hook fasteners.

Slate size	24"x 12"
Nominal thickness	1/4"- 3/8"
Slates per ft²	0.64
Weight per ft²(slate)	\leq 4.10 lb/ ft²

PATENTED SYSTEM

CUPACLAD[®] 201 Vanguard is a patented system developed by our R&D department that is designed to meet the highest technical requirements of the construction industry.

EASE OF INSTALLATION

Our metal rails feature small holes in them to mark the exact position where the clips should be placed. This avoids the necessity of drawing vertical guidelines and individual fastening for the clips.

PERFECT RESULT

The stainless steel clips have flanges that work just like a spring absorbing differences in the thickness of the slates. The result is a perfectly leveled cladding surface.

Fastening the metal brackets

The metal brackets are installed in alternate courses on each side of the vertical profile. It is required to use both fixed point metal brackets (on the upper end of each profile) and brackets with a sliding point to allow for the profile movement.

Fastening the "L" shaped vertical profiles

Fasten the vertical profiles to the metal brackets allowing at least 3/4" for an air cavity.

The vertical profiles must be perfectly plumbed before attaching the rest of the system components.

Installing of insulation

Choose the most suitable insulation material based on the project requirements. Installing in accordance with the manufacturers recom-

mendations.

Fastening the CUPACLAD[®] 201 Vanguard horizontal battens

Install the horizontal battens with the vertical ones at each intersection.

The gap between horizontal battens when fitting a 24 \times 12 slate must be 10".

The horizontal battens must be perfectly level as their position will dictate the final position of the slates.

Installing the flashing

Fasten a ventilated flashing at the first course of the cladding and the metal flashings on "singular" points (edges, window frames, etc).

Installing the slate with the special CUPACLAD® 201 Vanguard clips

The clips are fitted to the holes in the horizontal battens. Each slate is supported by two clips on the lower edge while fitted with another two on the top.

Installing the slate to the top of the cladding

At the top of the cladding when joining the gutters or flashing it is necessary to use the 201-V top profile to which the slate must be fitted with two self-drilling screws or rivets.

TECHNICAL DOSSIER | CUPACLAD® 201 Vanguard

- 2. CUPACLAD® 201-V Clip 3. Horizontal CUPACLAD® 201-V batten
- 4. L shaped 50X60 vertical profile
- 5. CUPACLAD[®] 201-V top profile
- 6. Metal bracket, "fixed point"7. Metal bracket "sliding point"
- 8. Self-drilling stainless steel screws
- 9. Insulation
- 10. Load bearing wall
- 11. Ventilated profile
- 12. Top metal flashing
- 13. Sill metal flashing
- 14. Metal lintel flashing
- 15. Metal jambs flashing
- 16. Metal flashing

CONSTRUCTION DETAILS CUPACLAD[®] 201 Vanguard

VENTILATED PROFILE AND TOP FLASHING

AIR CAVITY

CUPACLAD® 201 Vanguard

VENTILATED RAINSCREENS | CUPACLAD®

CUPACLAD[®] SYSTEMS COMPONENTS

a. Exclusive Cladding range, the slate for CUPACLAD[®] systems

b. Primary substructure

b.1. CUPACLAD[®] 101 systems Logic, Random and Parallel

||| CUPACLAD[®] 101 screw

||| CUPACLAD® 101 horizontal batten

b.2. CUPACLAD® 201 system Vanguard

||| 201 Vanguard special clip

||| 201 Vanguard horizontal batten

||| 201 Vanguard flashing

c. Secondary substructure

||| Metal bracket

. Fixed point

. Sliding point

||| Vertical profile

- d. Screws
- e. Air cavity

f. Insulation material

g. Waterproof membrane

h. Flashing

i. Load bearing wall

a. Exclusive Cladding range, the slate for CUPACLAD® systems

The CUPA PIZARRAS slate used for the CUPACLAD[®] systems has a 1/4" - 3/8" nominal thickness and a textured surface. It has been carefully selected for its technical properties to offer a flawless installation and performance.

The slate supplied for the invisible fastening systems is always pre-drilled at the required position, making its installation quicker and easier.

b. Primary substructure

b.1. CUPACLAD® 101 systems Logic, Random and Parallel

CUPACLAD[®] 101 screw

CUPACLAD[®] 101 series self-tapping screws have been developed to ensure optimal installation to the metallic structure. Produced in AISI 316 (A4) stainless steel, they feature a flat head that ensures ease of fastening.

CUPACLAD[®] 101 horizontal profile

The CUPACLAD[®] 101 horizontal batten was designed by our R&D department for ease of slate installation with invisible fasteners. It is made in 6060-T6 aluminium alloy.

The horizontal battens must be perfectly level as their position defines the alignment of the slate. Taking the top edge of the batten as the reference.

The distance between battens is defined for each system based on the slate size used (see page 14 and 15).

b.2. CUPACLAD° 201 System Vanguard

201 Vanguard Special clip

CUPACLAD® 201 metal clips are produced in AISI 316 (A4) .05" thick stainless steel.

The stainless steel clips have flanges that work just like a spring absorbing differences in the thickness of the slate, resulting in a perfect level surface.

201 Vanguard horizontal batten

The horizontal batten for CUPACLAD® 201 Vanguard is a patented system for ease of installation, manufactured from 6060-T6 aluminium.

The horizontal batten must be perfectly level as their positioning will define the final alignment of the slate.

The upper side of the batten features rectangular slots positioned every 2" to house the clips (screws are not required). With this method the use of chalk marks to position the clips is no longer required.

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CUPACLAD[®] 201-V top profile

For circumstances that require the use of a top section with concealed fastening, a special top profile is needed. Made of aluminium alloy 6060-T6, natural slate is then fastened by a rivet or self-drilling screw.

c. Secondary Substructure

Metal brackets

Metal brackets are required for fastening the metal profile to the supporting wall. This allows adjustment of the distance between the substructure and the supporting wall to compensate for any irregularities and allowing the use of an insulation material behind the air cavity if specified.

Two different types of brackets must be used in order to achieve optimal installation:

- Fixed point bracket: Should be secured to the solid structure of the building in order to resist vertical weigh and horizontal wind loads. Ther vertical profile is secured to the fixed-point bracket using the round holes.

- Sliding point brackets: Sliding point brackets secure the remaining length of the vertical profile to the wall using elongated holes, to allow movement due to the thermal expansion of aluminium.

FIXED POINT

SLIDING POINT

The metal brackets, made of aluminum alloy are installed in alternate courses on either side of the profile.

The dimension of the metal bracket will depend on the thickness of the insulating material to be installed in each case, and the spacing between should be specified for each project.

The fasteners used for the wall brackets must be specified on a per project basis by the manufacturer who will take into consideration the characteristics and detail of the supporting wall and the exposure on site.

Vertical L profile

The "L" shaped 2" x 2 3/8" vertical profiles manufactured from 6060-T6 profile aluminium alloy supplied in 1/4" lengths The gap between the vertical rails must be clarified on a project basis taking into account the following variables: exposure of the site, building height, and location.

VENTILATED RAINSCREENS | CUPACLAD®

The vertical profiles must be perfectly plumb before they support all the other components of the system.

d. Screws

The joints between the vertical profiles, the metal brackets and between the horizontal battens and vertical profiles , will be secured with rivets or stainless steel screws A2 (Ø2 1/4").

Horizontal battens must be fastened to the vertical profiles in each intersection. In areas where two consecutive horizontal profiles meet, the following must be taken into consideration:

- The end of each batten must have its own connection.

- Allow a gap of 1/8" between both profiles.

e. All Cavity

The substructure must allow for an air cavity between the insulation and cladding material.

For optimal air circulation the cavity must:

- Allow minimum of 3/4" width in the narrow areas.

- Both ventilation inlet and outlet must allow enough air circulation. In order to calculate it we must take into consideration the dimensions of the ventilation openings at the top and bottom of the cladding (measurements in cm² per lineal meter of cladding). They should be at least:

Building height (ft)	Minimum surface for ventilation (in²/ft)
≤ 10'	20"
10' a 20'	25"
20' a 33'	32"
33' a 59'	40"
59' a 79'	45"

At the first course of the cladding, the opening at the inner channel must include a ventilated profile that also incorporates a mesh to prevent the entry of insects & small animals.

f. Insulation material

There are various types of insulation on the market suitable for ventilated rainscreens. The nature and thickness of the insulation must be carefully calculated on an individual project basis taking into account the varying factors (type of building, location and exposure).

g. Waterproof Membrane

For timber buildings it is advisable to cover the supporting wall with a waterproof membrane. It is important to ensure the membrane is perfectly installed and will not cause any obstruction for correct ventilation.

h. Trim

Flashing can be produced in galvanized steel, aluminum or zinc, and are used for edges, window frames and other sections of the cladding.

i. Load bearing wall

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 take into account the wind loads transmitted through the substructure.

CUPACLAD® TECHNICAL ADVICE

CUPACLAD has a technical department dedicated to helping customers specify projects, ensuring the highest quality and commitment, and providing solutions to meet every requirement.

We inspect your plans to produce a detailed specification on recommended systems to fit your project. We go one step further in offering tailor made solutions to satisfy any unique requirements your project may entail.

Our technical department is also responsible for the coordination of sales, marketing and production activities to ensure the maximum quality of the material to be supplied.

CUPACLAD[®] stands for personalized attention

You can contact our technical department on CUPACLAD.com or cupaclad@cupagroup.com

The quality of our product lies in our total control of the entire production process (from extraction to shipment) and by putting in place the highest quality and environmental policy requirements demanded by ISO 9001 Quality and ISO 14001 Environmental certifications.

Our strength of commitment to quality has earned us the confidence of thousands of architects, contractors and clients worldwide.

CUP/4-PIZARRAS The world leader in natural slate

With more than a century of experience CUPA PIZARRAS has become the world leader in natural slate production, sales and marketing. We strive to keep ourselves in this privileged position by focusing on quality, investing in innovation and maintaining our commitment to sustainable growth.

One in every three slates used throughout the world is a CUPA PIZARRAS natural slate. Our 16 quarries and 22 processing facilities combine the latest technology with our traditional know-how and craftsmanship.

Our thorough inspection from extraction to processing to shipment allows us to produce unique natural slate recognized worldwide for their quality.

Today we export over 98% of our production to 60 countries on 5 continents.

CUPA PIZARRAS is part of the CUPA GROUP, 65 companies whose mission is to offer innovative building solutions with natural materials.

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