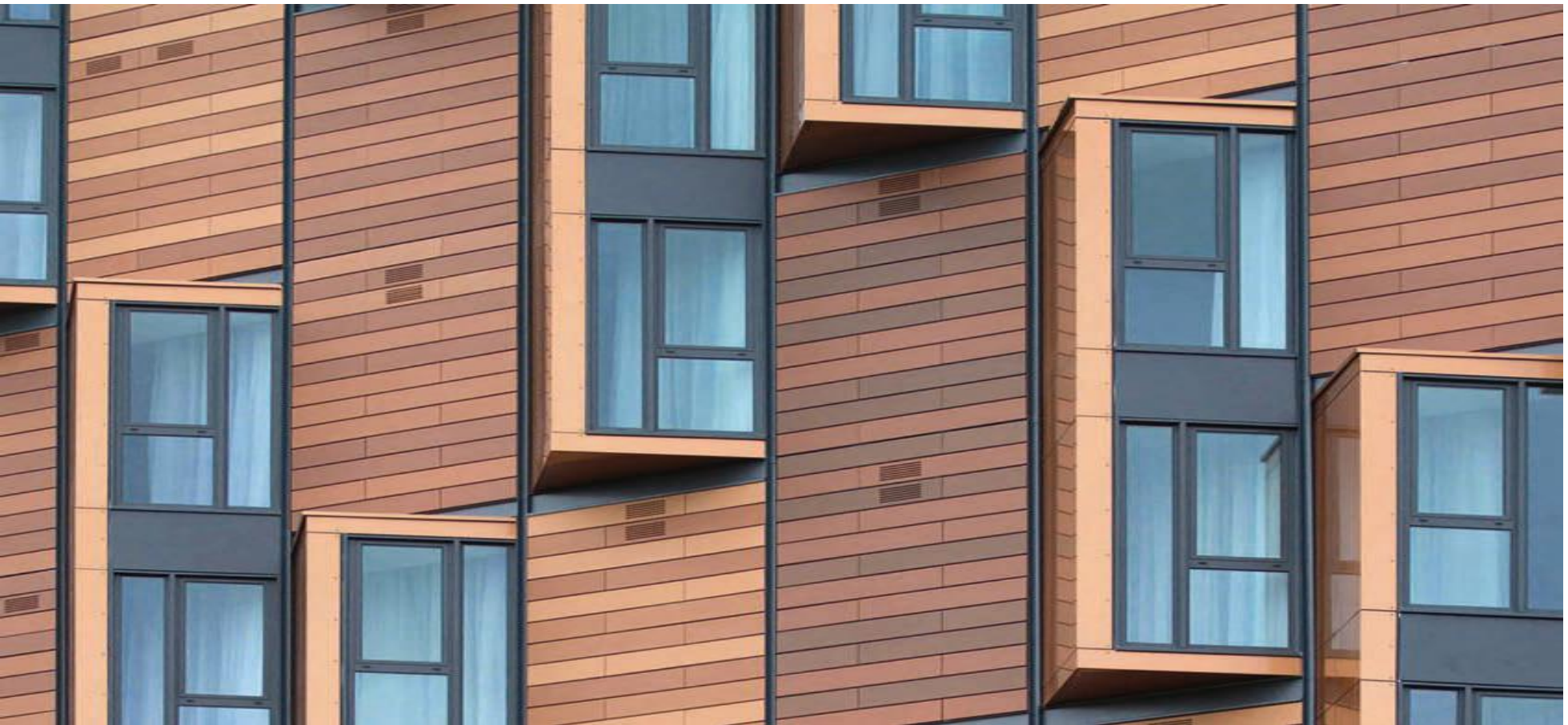
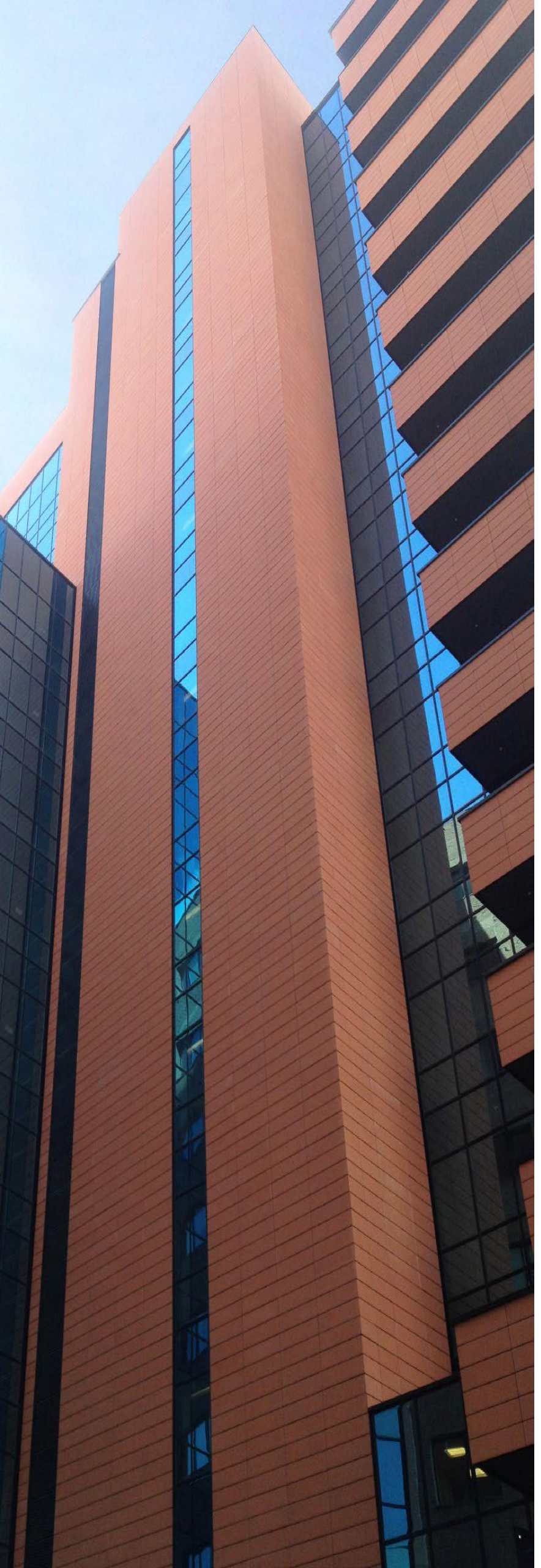
Zamil
Architectural Industries

**BUILDING YOUR VISION OF THE FUTURE**



Zamil Architectural

# Terracotta Facades Systems





# Zamil Architectural Industries

An innovative facade solution of timeless elegance – that‘s Zamil Terracotta ventilated facade panels, made of clay and combining particularly well with steel, glass or wood in newly constructed buildings while also lending renovation projects a modern character.

Zamil Architectural firmly believes in the potential of using terracotta for the exterior and interior cladding of buildings of any typology, extent and height. We believe in the cultural and technical value of a material that has accompanied civilization in its technological and social progress.

We believe in a natural material whose production cycle fully respects the environment and community, a truly eco-friendly material used by contemporary architecture to best express its aspirations towards a housing model that corresponds to the needs of its inhabitants and merges harmoniously with its surroundings.

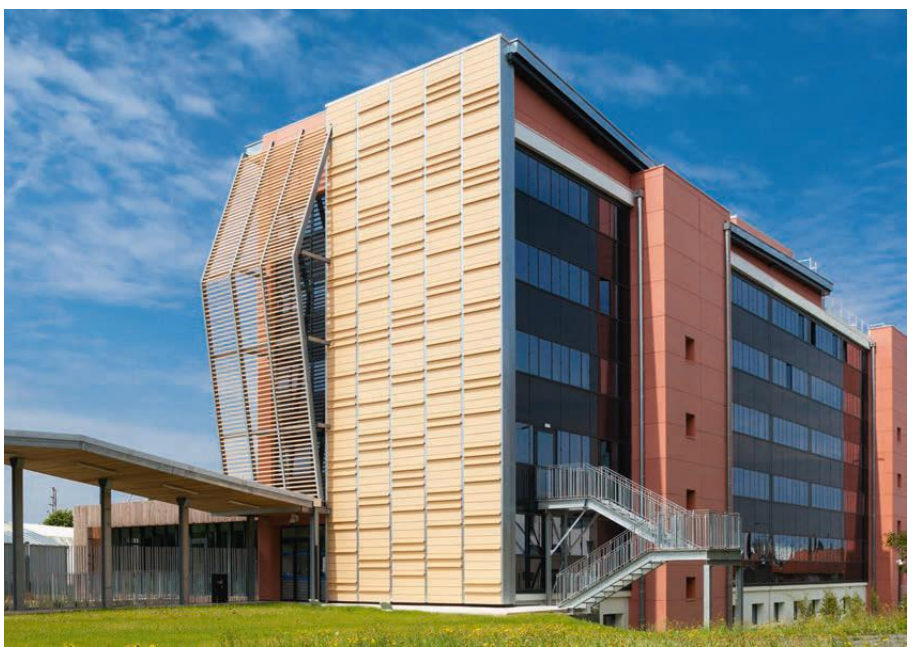
With Zamil Terracotta the durability is just as persuasive as the contemporary aesthetic: our ceramic facade panels are impervious to weather, impact-proof and shatterproof and require virtually no maintenance.
Durable and timeless, they are a dream for every architect – especially since our bespoke facades are available in every imaginable colour, shape and surface.

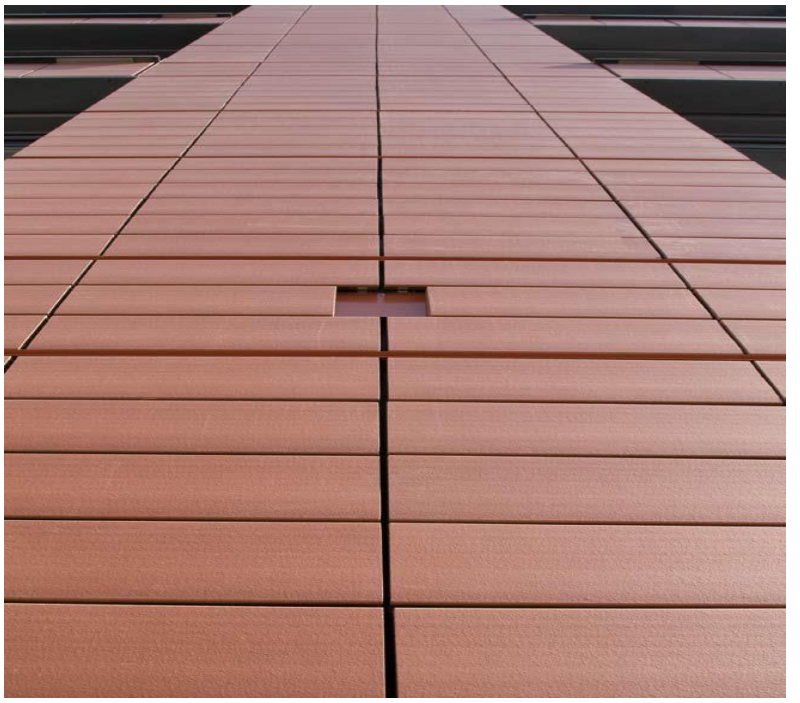
# Rain screen cladding solutions

The technique of ventilated façades is born from the demand to integrate three essential aspects of modern architecture: efficiency, rationality and aesthetics. Aspects that are conditioned by a new project conception where the importance of the image is implemented through a more conscious and attentive look, aimed at containing energy consumption and optimizing comfort.

The use of ventilated cladding in terracotta grants considerable advantages such as :

- RAINSCREEN FUNCTION
- SAVING ENERGY THROUGH THE CHIMNEY EFFECT
- CONTROL OF HUMIDITY AND CONDENSATION
- ELIMINATION OF THERMAL BRIDGES
- THERMAL INERTIA
- ACOUSTIC COMFORT
- MAINTENANCE AND DURABILITY





## RAINSCREEN FUNCTION

Traditionally, the most common technique used in construction to avoid water infiltrations inside the building consists of eliminating the openings through the use of sealing materials. The difficulty of a workmanlike application of these materials and the solicitations caused by thermal expansion and direct exposure to solar rays often causes a deterioration of the system which can only be contained through intensive maintenance. The rain screen technique, on the other hand, aims at removing the factors that allow water penetration.

In fact, the combined presence of the external cladding consisting of a dry installation of panels and an air chamber, connected to the external environment through the open joints between the panels, allows to:

- Intercept of the rain water (mechanical screening with gravity elimination and kinetic energy)

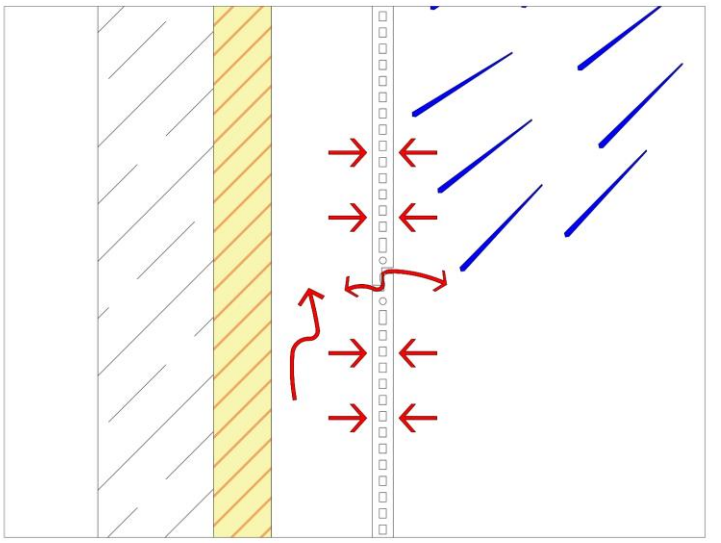
- avoid phenomenon of capillary infiltrations

- avoid phenomenon of water passage due to the difference of pressure (equalization of pressure)

## SAVING ENERGY THROUGH THE CHIMNEY EFFECT

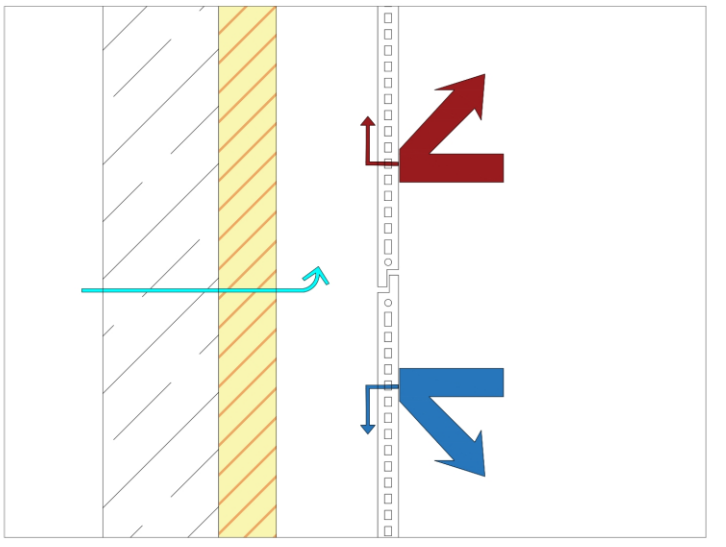
Natural convection known generically as “chimney effect” is the effect in which the ventilation of the wall cavity (gap between the ceramic and the insulation material) that provide thermal and technical benefits:

1. In warm season, the temperature gradient creates an air current that evacuates the wall cavity’s heat so there is a considerable reduction of the refurbishment cost.
2. In cold season, the temperature gradient is low so the ventilation is lower. The wall cavity protects the insulation material boosting heating savings.



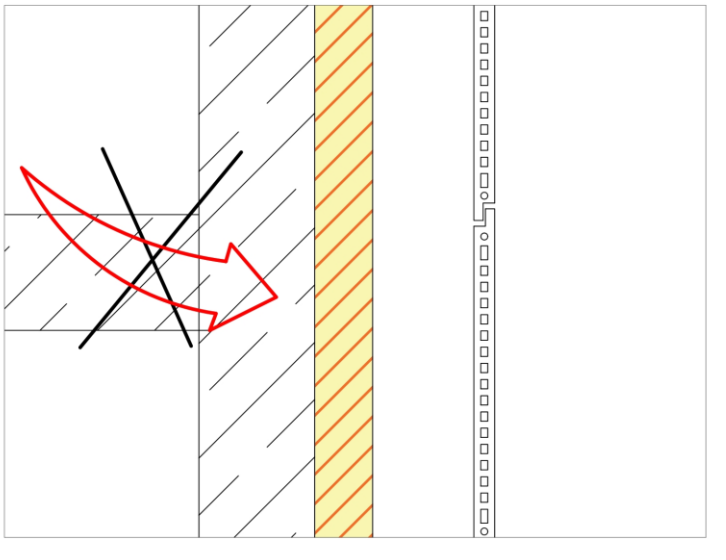
## CONTROL OF HUMIDITY AND CONDENSATION

The existence of a ventilated façade and external insulation causes the dew point to form in the outer part of the façade and not in the inner part, and thus, preventing humidity in the inner parts.



## ELIMINATION OF THERMAL BRIDGES

The major conductivity of thermal bridges with respect to the adjacent constructive elements is a critical point in buildings’ coverings. In these areas stain, mold formation and the deterioration of constructive components may occur; as a consequence, this can lead to an increased energy dissipation. Thanks to the installation of an insulator from outside, the ventilated façade system allows to create an easy and advantageous reduction of thermal bridges.



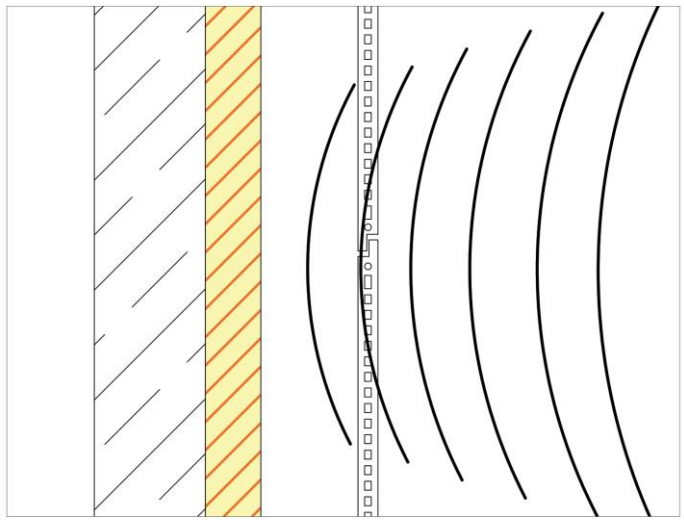
## THERMAL INERTIA

The internal environment of a building clad with a ventilated façade is less subject to thermal shocks and to interruption of heating at night, in fact the insulation placed on the external surface of the wall allows to maintain a higher temperature in the whole building complex than if insulated from inside.

## ACOUSTIC COMFORT

Ventilated façades create a constant thermal and acoustic insulation: the joints between the panels, the air gap and the thermal insulation, its compositions in layers of different specific weight, ensure a strong reduction of noise pollution.

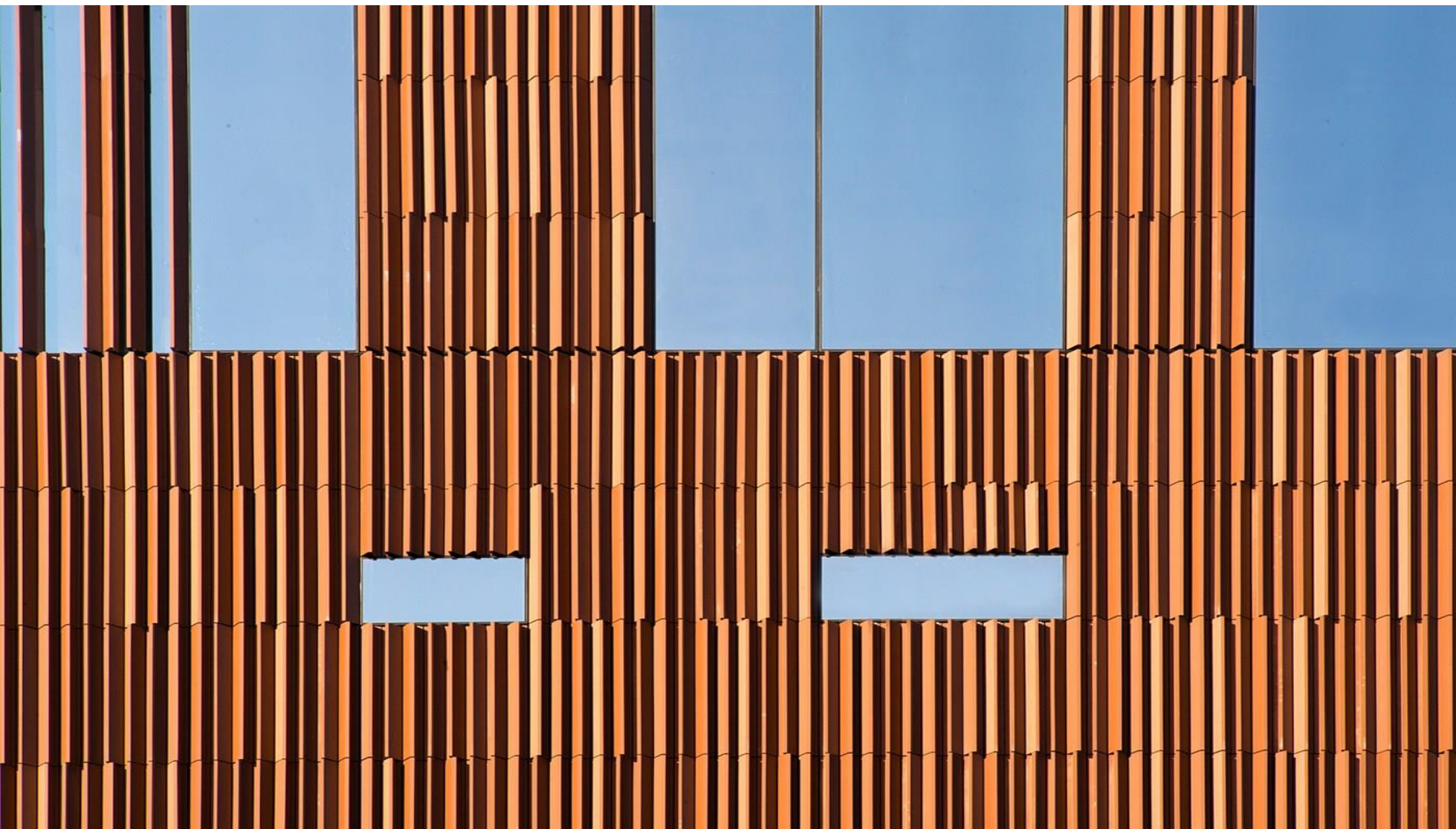
The use of terracotta increases the acoustic performances, granting an excellent behavior with regard to rain and hail as well as closing off external noises.



## MAINTENANCE AND DURABILITY

One of the advantages of terracotta ventilated façade system is the fast and simple assembly and the dismantle process of the pieces.

Depending on the location of the building, dirt could appear in the façade because of the environmental pollution primarily provoked by exhaust gases. Nevertheless, since ceramics have low absorption (lower than 1%), pollution does not penetrate the tile and it does only settle in the surface. Normally, rainwater is enough for cleaning the surface and, in exceptional cases, just high-pressure water is enough and no solvent is required.



# Technical Compliance

## CERTIFICATES AND GUARANTEES

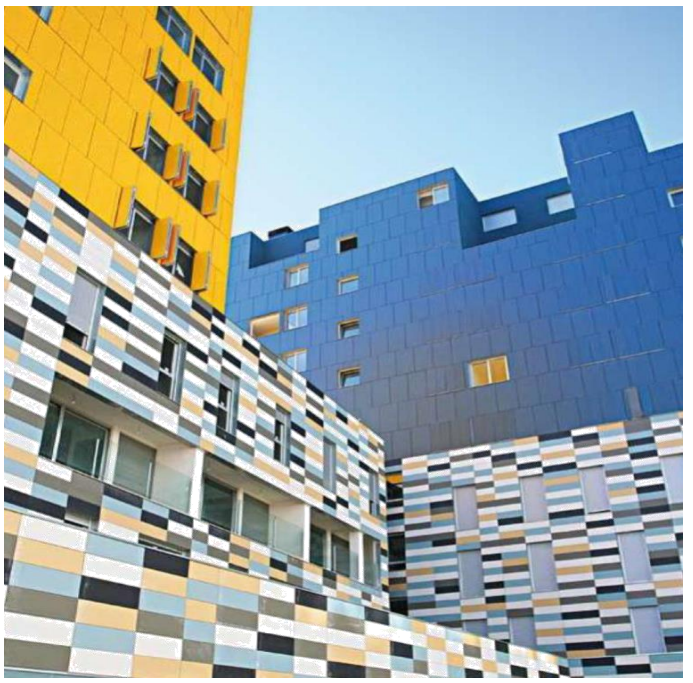
All materials used in the installation of Zamil ventilated façades have all the pertinent quality certificates and comply with all the technical specifications.
ZAMIL SYSTEMS have been subject of several tests:
- Reaction to fire.
- Resistance to rainwater penetration.
- Resistance to wind force and suction.
- Resistance to vertical weight support.
- Resistance to impact.
- Ceramic is subject of several regulated tests under the regulation ISO-10545: dimensional tolerance, stress, water absorption, freezing, hardness, thermal shock, thermal expansion, and chemical composition and humidity expansion.

## ECOLOGY AND SUSTAINABILITY

Zamil Terracotta is a sustainable construction solution for the environment.
ECONOMY : The high durability of our ventilated façades, low costs of maintenance and easy cleaning guarantee a high amortization.
ENVIRONMENT : Zamil façades are characterized by their easy system of dismantle and so, they produce a lesser amount of waste than traditional systems. In addition to this, building's energy consumption is reduced because this is an external insulation system. The heating of the surface, along with the "Chimney effect", provokes a variation on the density of the air layer from the intermediate gap or "cavity wall", and thus, producing itself an ascendant movement. Façade's thermal insulation adapts depending on the climatology and succeeds in creating a homogenous and healthy environment in the whole building. It prevents, at the same time, the apparition of several problems such as humidity (like in traditional constructions) by means of spreading of vapour in the cavity wall preventing condensing and corrosion process.

## SOCIAL :

Ventilated façades adapt to all kind of facings and do not interfere with the architects 'creative possibilities. It is an innovative system that far exceeds the requirements asked by the regulation of sustainable building. Ventilated façades boost both thermal and acoustic insulation of the building and allow the laying of corporate designs over the façade without the need to modify the structure.



## FIRE SAFETY

Ceramic terracotta façade systems are inherently not combustible and does not produce smoke or water drops. Reaction to fire classification of ceramic and metallic components (found in clips, profiles and corbels) is categorized as A1 Class.
In ventilated façade systems, fire safety is directly related to the slitting of the cavity of the window lintel. Fire coming from the interior of the home can spread because of the ascending convection from the cavity wall. For that reason, it is recommended to close the cavity lintel.

# Technical Solutions

Working with the raw material, Zamil realizes the designer's idea, creating customized modules, terracotta panels and mechanical fixing systems to obtain the best suitable product for every individual project.

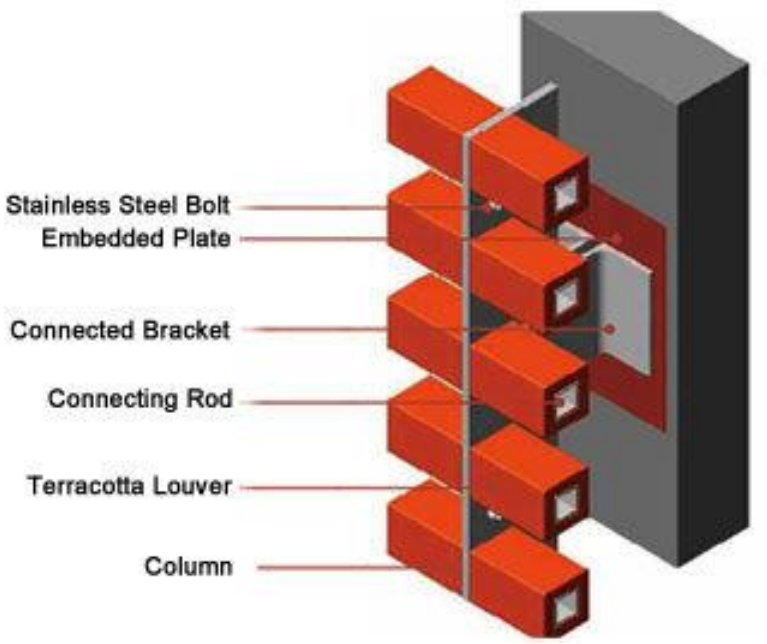
Our organization can offer a complete service, including the whole production process from raw material to installation, providing full technical and strategic support. The design of the fixing system, the execution of shop drawings, the jobsite direction and assistance to the planner are considered essential for the high-quality result of our projects.

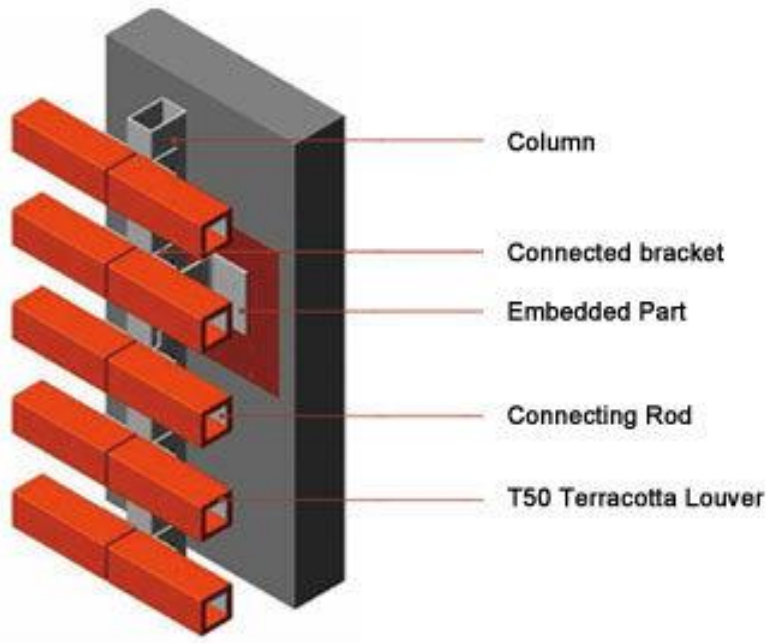
Our engineers assists the Architect from the initial stage until the completion of the project. It provides consultancy, studies feasibilities and supplies technical solutions according to the project specification, offering a complete service including field measurements, shop drawings of the building envelope, preparation of cutting lists, structural calculation reports, instructions for installation and guidelines for façade maintenance.

The development of new solutions is always a challenge to us which can involve the design of new terracotta panels and finishes, new production processes and the realization of customized fixing systems.

The Architect will find in Zamil the right partner to give form to his creativeness.





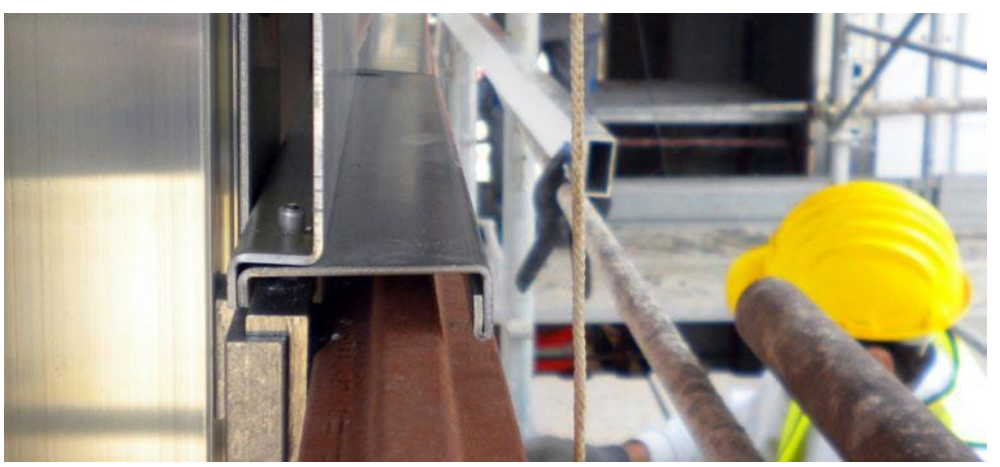
# Engineering Solutions

## ALUMINIUM PROCESING

Aluminum and its alloys have been chosen as basic material for the realization of the fixing system for rain screens and sunshades: this prestigious material is, light, resistant, flexible to create new and sometimes complex shapes by the design of new molds. Today a collection of profiles engineerred by our technical staff are operative. The necessity to meet the specific requirements of every single project, often in very short-term, has brought the company to work the aluminum inside its own plant. ZAI has set up a dedicated area with CNC work stations for working processes such as milling, drilling, thread-cutting and slotting of aluminum bars.

## INSTALLATION

This is the last stage but not less important for the realization of the outer coating. Experience may show that an incorrect implementation can nullify all the efforts previously made. For this reason we offer advise from engineering to installation.



# Bespoke Solutions

The terracotta profiles described before represent a selection of elements already produced by Zamil; they have been chosen as materials on which to base standard extrusion due to their functional and aesthetic characteristics and with regard to production aspects.
On the other hand this table is nothing more than the base of a work in progress, to which the Architect can refer to when designing the cladding element for his project; customized cladding elements can thus be designed and developed upon request and in collaboration with Zamil technicians, who are in charge of verifying the production and installation feasibilities and to study the most suitable solution.

## Ceramics and Colours

18mm R12

18mm O8

18mm P12

18mm BY8-1

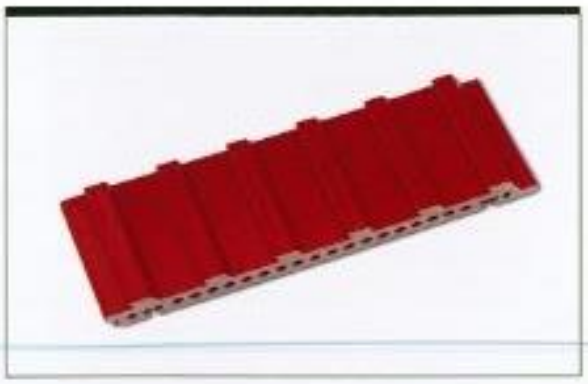
18mm O10

18mm RS11-X

18mm C10

18mm B2

20mm B07



20mm RS05

20mm B10

20mm B15-4

## Ceramics and Colours

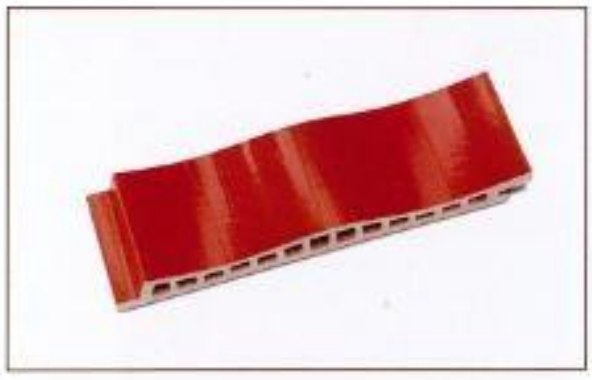
20mm Y14

20mm R10

20mm Y7-1

30mm C10

30mm R07



30mm RS05

30mm F10

30mm T1

30mm B10

30mm R13-Z

8mm B10

40mm B15-3

## Surface Effects

Natural

Grooved

Gritted

Stripy

Ripple

Rock

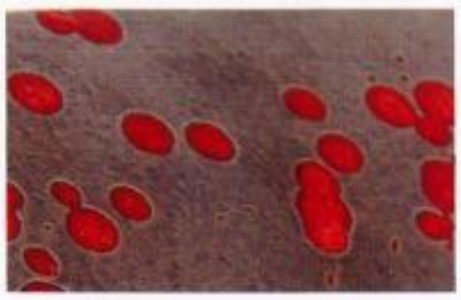
Matt

Fine Sand

Metalic

Glazed

Polished



Mixed

Fine Thread

Anomaly

Marble

Wood

## Ceramics and Colours

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