

# COMPARATIVE ANALYSIS OF VENTILATED FACADE SYSTEMS

A COMPARATIVE  
ANALYSIS OF

TYPES OF EXTERIOR  
INSULATION

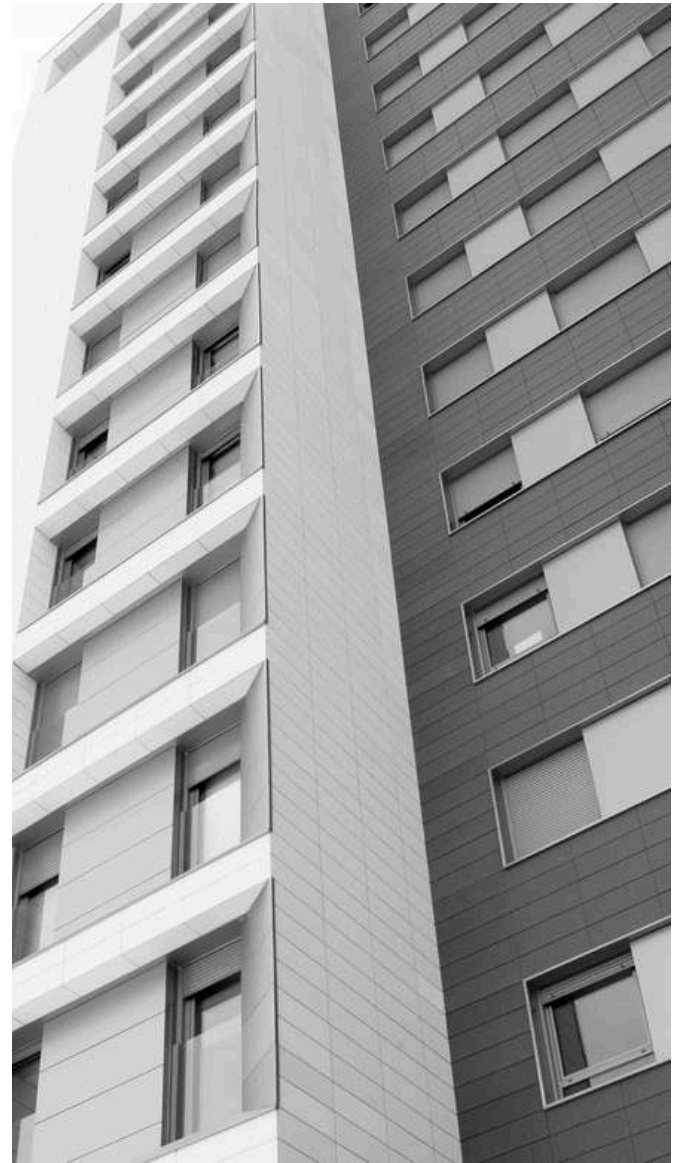
VENTILATED FACADE  
SYSTEMS

CERAMICS IN VENTILATED  
FACADE

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# ABOUT THE FACADE



## WHY WOULD BE ADVISABLE TO INSULATE A FACADE FROM THE OUTSIDE?

*To avoid thermal bridges, which are responsible for the loss of around 30% of the loss of energy in buildings.*

*When installing a thermal envelope from the outside, these thermal bridges are insulated in a simple and efficient way, and thus the largest possible reduction of energy demand in the building is guaranteed.*

## HOW CAN WE INSULATE A FACADE FROM THE OUTSIDE?

*Buildings can be insulated from the outside by means of two types of facade:*

- *conventional or confined:*

*It consists of a construction system made up of an isolating layer adhered to the internal wall, and a finish made of ceramic cladding, level and painting, monolayer mortar, stone cladding, etc. adhered to the insulation itself.*

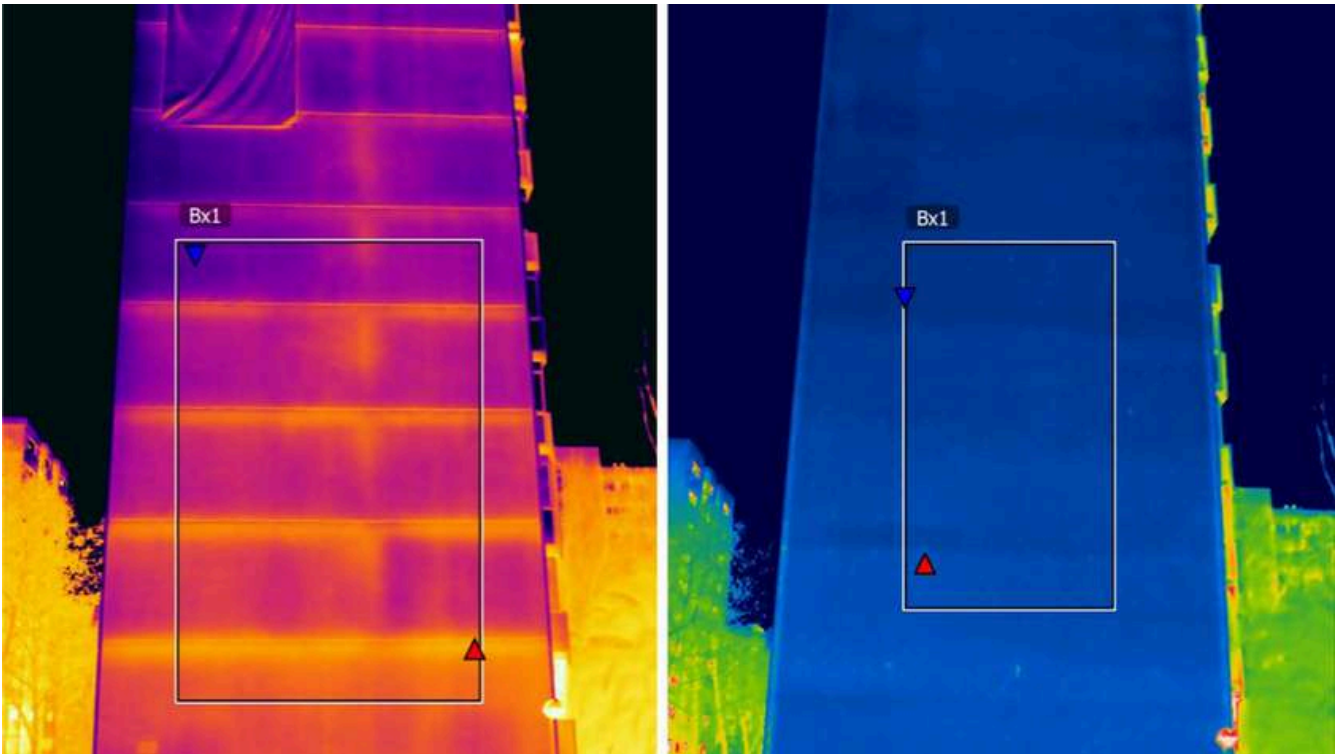
- *ventilated:*

*It consists of a construction system that creates an air chamber, unsealed. between the isolating element that is adhered to the internal wall and the exterior cladding, which allows continuous air circulation, contributing to the energy efficiency of the building.*



# COMMON PATHOLOGIES IN POORLY INSULATED FACADES

*"A poor insulation is not only inneficient but it also adversely affects comfort, salubrity and durability"*



*The problems that can appear in a poorly insulated facade will always affect the rest of the building one way or another. The most common pathologies because of this bad insulation are condensation, cold-wall effect, inside and outside damp, loss of inside temperature, structural defects provoked by damp, comfort reduction...*

**BY COMPARING  
THERMOGRAPHIES WE CAN  
OBSERVE THE DIFFERENCE  
IN THE WAY OF INSULATING  
THERMAL BRIDGES**

# THE VENTILATED FACADE



*Ventilated facades can be cladded with diverse materials which have different features of durability, safety, design, sustainability, cost, installation complexity...*

*The most commonly used cladding materials in around 80% of ventilated facades are:*

CERAMIC

COMPOSITE PANEL

PHENOLIC PANEL OR HIGH PRESSURE  
LAMINATE (HPL)

FIBRE CEMENT

COMPOSITE RESIN

GLASS REINFORCED CONCRETE (GRC)

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*There are other materials used in ventilated facades, but these are less common due to different reasons:*

WOOD PANEL

*because of its narrow areas of application.*

GLASS CURTAIN WALL

*because of the kind of building where it is used.*

BIG SIZE METAL SHEETING

*because of its design limitations.*

NATURAL STONE

*because of the high cost of material and installation.*

# CERAMIC IN VENTILATED FACADE

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## THE PRODUCTION METHOD

*Ceramic is a versatile and resistant, as few are, which makes it one of the favorite materials for architects and specifiers in both private and public projects. Considered as a timeless material in the architectural field thanks to its practicality, resistance and durability, ceramic is a material that, with the help of new technologies in the sector, offers endless design possibilities.*

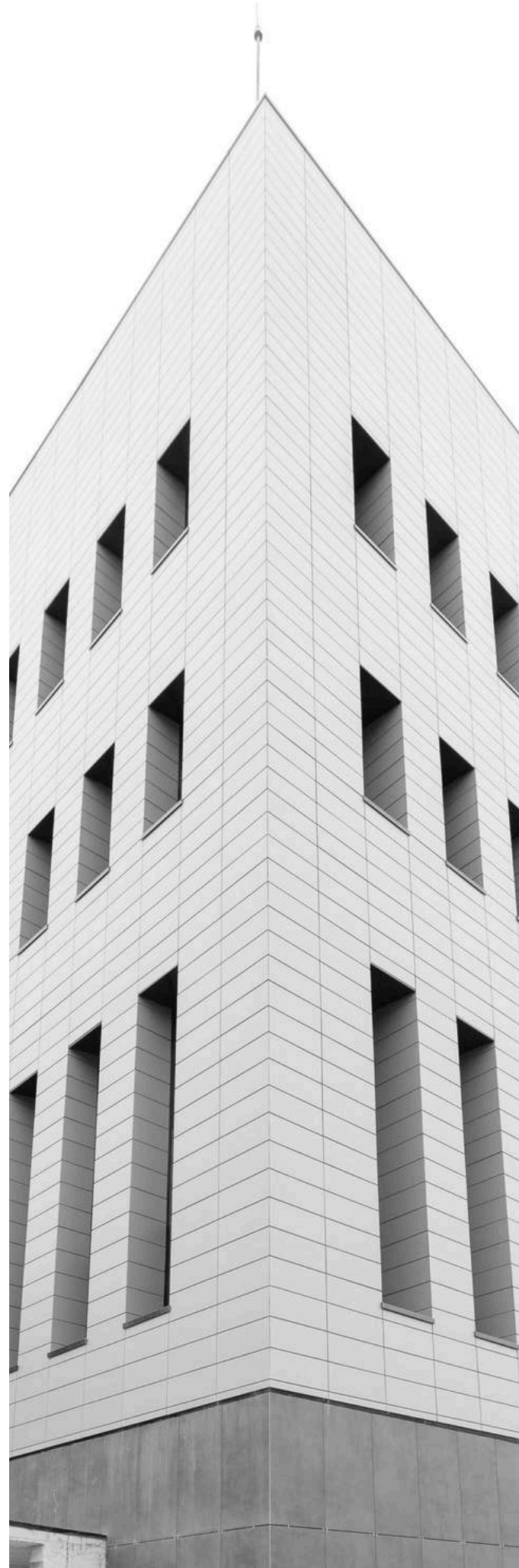
*There are two production processes according the used technology used:*

- **Press:**

*To sinter with the use of a press with the application of compressive force on a plastic static body.*

- **Extrusion:**

*To apply a compressive force on a plastic mix to make it run through a cavity that acts as a mould (usually made of metal).*





# COMPARING TO MAKE IT RIGHT

*From the solutions to  
insulate a facade to the  
materials to accomplish it*

*Taking into account the previous  
introduction on different kinds of  
facades and most commonly used  
materials, three levels of comparison  
can be established to find the best  
solution for each facade depending on  
the project needs.*

# DEPENDING ON THE TYPE OF EXTERIOR INSULATION



## CONFINED FACADES

### ADVANTAGES

- Low cost.
- Good thermal performance.
- Little technical complexity.
- Good results in colder and drier climates.

### DISADVANTAGES

- Less efficient in cold air conditioning phase.
- Low breathability, which can provoke condensations.
- Bad behaviour in damp climates.

### COMMON PATHOLOGIES

- Damage caused by condensations.
- Deterioration of the insulating material in continuous presence of damp.
- Low mechanical resistance to impact and difficult repairation.

## VENTILATED FACADES

### ADVANTAGES

- Optimal thermal performance.
- Very good acoustic performance.
- It avoids condensation and rotting insulation, which results into bigger comfort.
- More efficient and, therefore, more savings.
- Nicer aesthetics of the surface.
- Ideal performance both in colder, warmer, drier and damper climates due to the insulating effect and the capacity to stop dampness.
- High durability.
- More sustainable solution.
- Top-quality finish.

### DISADVANTAGES









- Bigger initial investment.
- It requires qualified installers.

### COMMON PATHOLOGIES

- Problems caused by the use of not approved systems that can endanger the quality of the installation.
- Troubles or aesthetic defects can appear when not all system elements are considered (rodent net, window sill without gutter, poorly installed ridge pieces...).

# DEPENDING ON THE MATERIAL USED IN THE VENTILATED FACADE

## COMPARATIVE ANALYSIS OF MATERIAL PERFORMANCE

	Cost	Resistance	Durability	Design	Installation	Weight	R&R fire	Sustainability
								
● Natural stone	High	Low	Medium	High	Complex	High	Good	High
● Metal	Medium	High	Medium	Low	Complex	High	Good	Medium
● Wood laminate panel	Low	Low	Low	Low	Easy	Low	Bad	Medium
● Phenolic panel	Medium	Medium	Medium	Medium	Easy	Low	Bad	Medium
● Fibre cement	Low	Low	Low	Low	Easy	Low	Regular	Low
● Pressed ceramic	Low	Low	High	High	Complex	Medium	Good	Medium
● Extruded ceramic	Medium	High	High	High	Easy	medium	Good	High
● Composite panel	Medium	Medium	Medium	Low	Complex	Low	Regular	Medium
● Composite resin	High	High	High	High	Complex	High	Bad	Medium
● Glass	High	Medium	High	Low	Complex	High	Regular	High
● GRC	Medium	Medium	Medium	Low	Easy	Medium	Regular	Low

\*The performance of the materials is valued in relation to the rest of materials from the analysis.



# DEPENDING ON THE TYPE OF CERAMIC

When using ceramic in a ventilated facade, what architects do is cladding the building with a skin that allows to create different zones, effects, volumes..., while adding excellent technical characteristics. In short, they provide with personality and a unique character.

The use of ceramic in the ventilated facade means the adaptation to sustainable building, since this material brings durability and resistance, endless aesthetic possibilities, insulation increase as well as a light clean solution in contrast to other materials commonly used in facades.

## PRESSED



●	Cost	●
●	Resistance	●
●	Installation	●
●	Weight	●
●	System	●

## EXTRUDED



Pressed ceramic and extruded ceramic have similar performance in terms of durability, design and reaction to fire. However, there are some significant differences in relation to mechanic resistance and installation performance.

Extruded ceramic has outstanding technical advantages such as **frost resistance** and **thermal shock resistance**, as well as the possibility to create **volumetric panels**, what makes extruded ceramic ideal for its specification in outdoor spaces.

Moreover, extruded ceramic does not need extra elements to guarantee the resistance, as it happens with thin and light press ceramic. Thicker pressed ceramic has a similar cost to extruded ceramic and requires machining or adhesive elements for its installation, resulting into non-registrable systems for the most part. On the contrary, extrusion process allows to produce **registrable panels**, that is, panels which can be easily removed when access to the system behind the panel is needed or if the panels should be replaced.

# FAVEKER®

## THE SUSTAINABLE, LONG-LASTING AND ATTRACTIVE VENTILATED FACADE



### **Durability**

Without changes in its performance, Faveker® ceramic lasts overtime without being affected by climate agents (humidity, wind, solar radiation...).

### **Resistance**

Faveker® porcelain panels are made by extrusion, and its high resistance allows installation with spans between supports up to 1200 and 1500 mm

### **Efficient and sustainable**

Faveker® systems are highly energy efficient thanks to the energy saving that they bring to the building, and environmentally friendly in composition (>50% of recycled content) and production process (100% recyclable).

Faveker® is an extruded-ceramic-ventilated-facade-system manufacturer, a solution to get more building sustainability, which turns into more efficiency and comfort.

### **Safety**

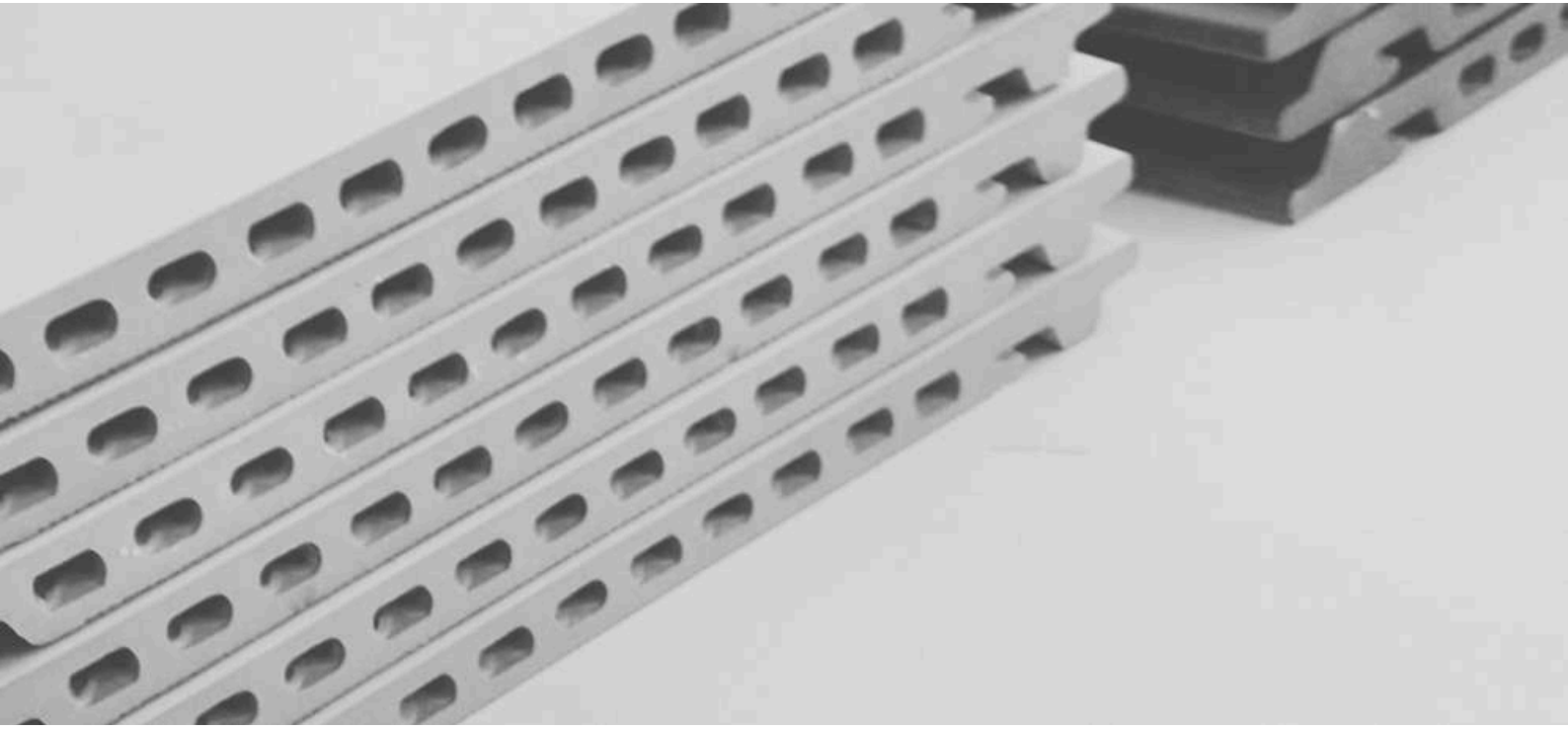
Bioklinker® technology antipathogen properties are added to Faveker® ventilated facades, helping to satinize the space.

### **Aesthetic possibilities**

With the help of digital printing, there are endless possibilities of finishes of the highest quality and durability.

# FAVEKER<sup>®</sup>

ARCHITECTURAL CERAMICS



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