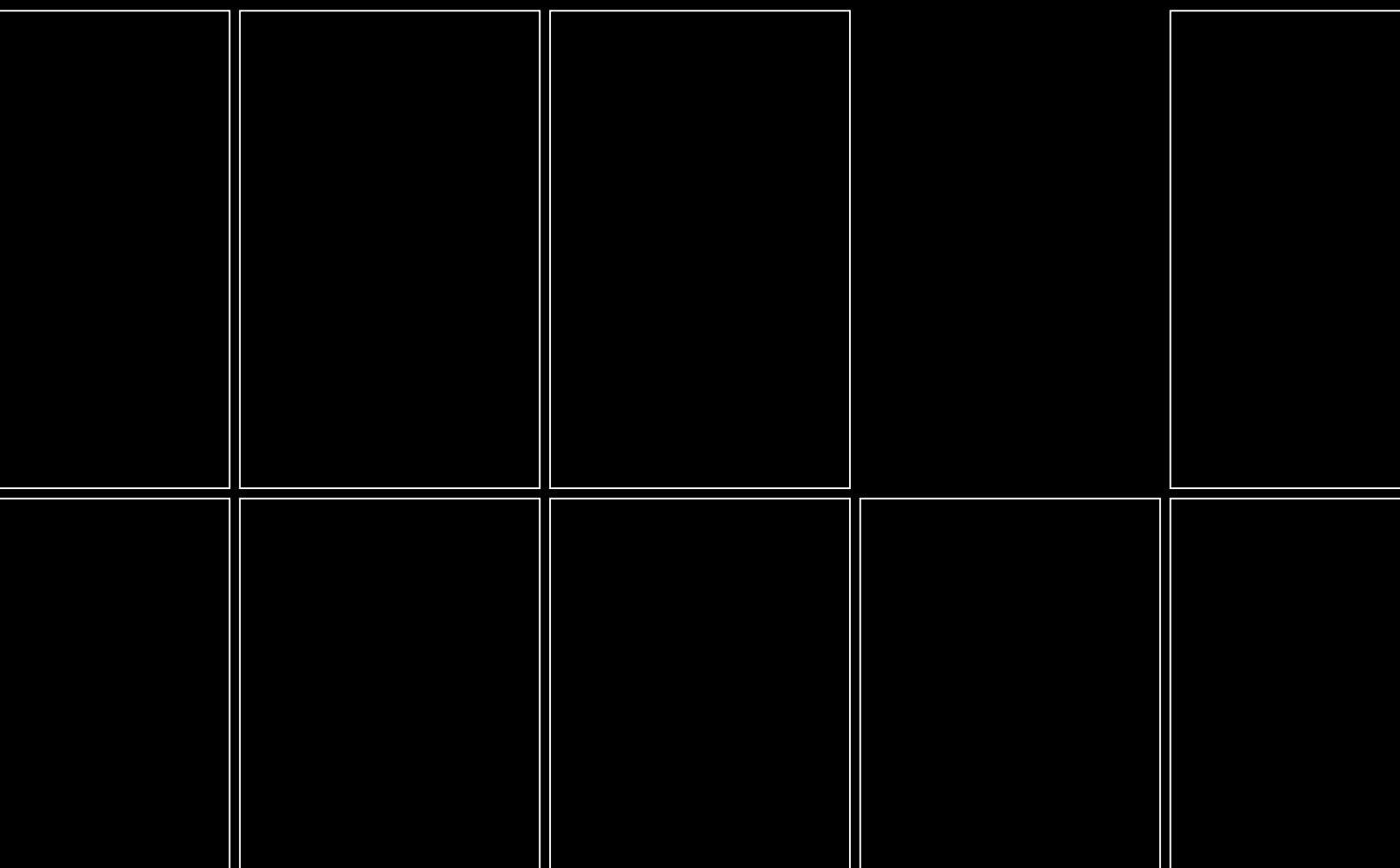
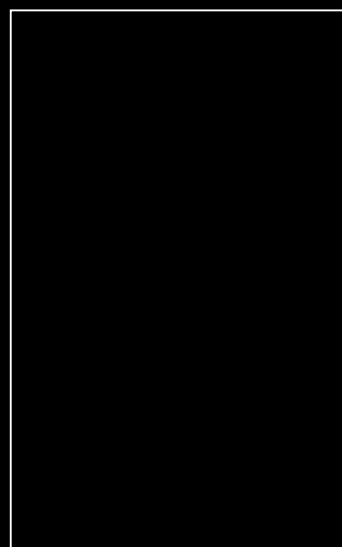


Modular Facade.

MODFACADES
Industrialized Facade
Modular System



Index

_ What is it?	_ Digitization
_ What is it like?	_ Production, Manufacturing, and Transportation
_ Problems in traditional construction	_ Timelines
_ Advantages of industrialized construction	_ What do we offer?
_ Types of modules	_ Prescription
_ Regulations and Testing	_ What do we need?
_ Advantages of the system	_ Achievements

What is it?

Modfacades is a facade module system that is supplied fully finished from the factory with insulation, structure, and Porcelanosa Grupo finishing. Being a product manufactured in the workshop, it offers numerous advantages over traditional facades. It is a system that ensures high construction quality, creating a standard solution with high technical performance tailored to the project's needs, allowing for precise control of the manufacturing and installation process.

FULLY FINISHED FACADES:

- _ Self-supporting systems
- _ Thermal insulation
- _ Waterproofing
- _ Sound insulation
- _ Exterior finish
- _ Carpentry and glass
- _ Sealing from the inside

It features an EPDM joint system that facilitates expansion and alignment, preventing water ingress.

The modules are anchored to the upper floor using anchoring plates that allow for adjustments in all three Cartesian axes to correct structural deviations. Furthermore, the modules are secured to each other on the sides and bottom using tie plates. There is also the option to include windows, glass, and their finishes



How is it?

MODULE SIZES

Width: from 0.50 meters to 2.40 meters (there is the possibility of making wider widths, but with an additional cost for special transport).

Height: from 2.8 meters to 4.00 meters (there is the possibility of making taller heights with a customized study and calculation, adapting to the distance between floor slabs or supports).

GENERAL CHARACTERISTICS

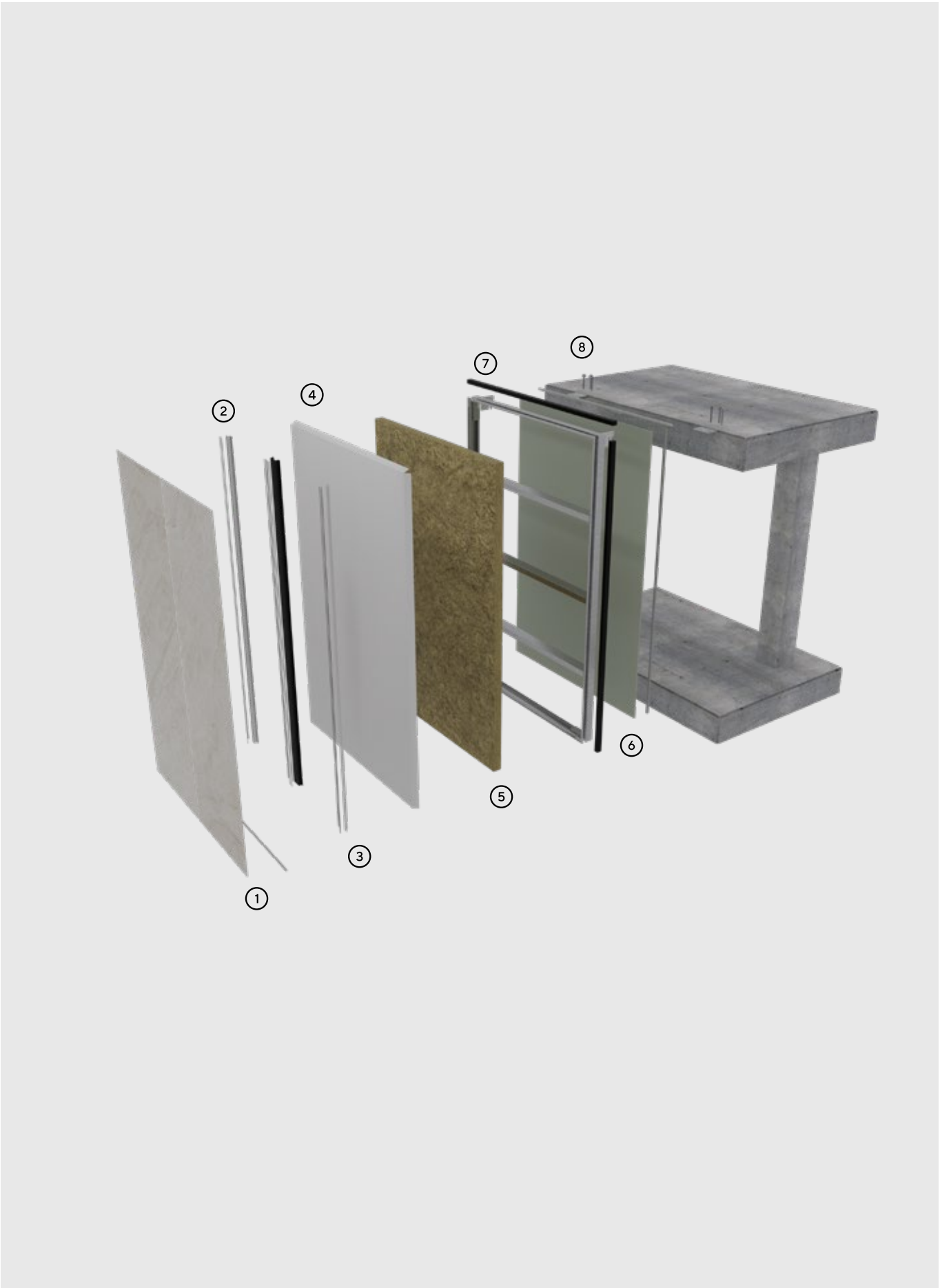
Weight: between 45 and 55 Kg/ m2. Standard panel of 2 meters in width = Between 264 and 282 kg.

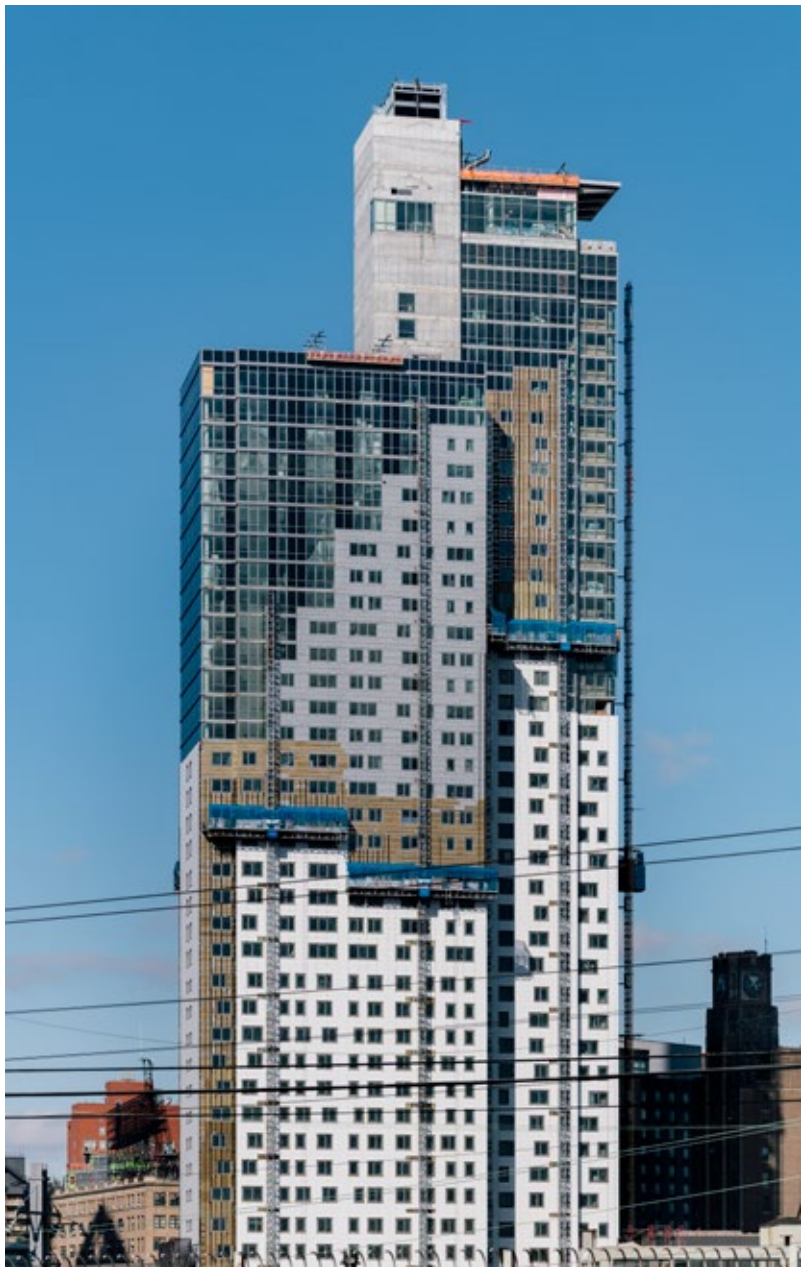
Thickness: For a standard frame of 90 mm in width, the module has 145 mm. This width can be adapted to insulation or envelope strength needs.

Height above the floor slab: $120 < H < 200$

Distance between the edge of the floor slab and the interior face of the module:
 $60 < d < 120$

- 1_ Large or standard format ceramic finish
(Possibility to consider other exterior finishes: composite, aluminum, etc).
- 2_ Adhesive and double-sided tape (Option to include mechanical fastening clips).
- 3_ Omega profile.
- 4_ Waterproof membrane.
- 5_ Mineral wool insulation.
- 6_ Joint system.
- 7_ Perimeter frame.
- 8_ Anchoring to the floor slab.





Problems of tradicional construction



Our facade system is presented as a **response to the problems** caused by the current execution of facades on-site with manual methods and construction by elements.

- _ Lack of labor
- _ Unskilled labor
- _ Rising prices
- _ Trade overlaps
- _ Non-compliance with deadlines
- _ Cost of auxiliary means

The PORCELANOSA Modular facade represents a **qualitative leap** compared to the ventilated facade systems that we have been implementing worldwide for more than a decade.



Advantages of
industrial construction

- 1_ Reduction of occupational hazards

3_ Reduction of material storage and waste on-site

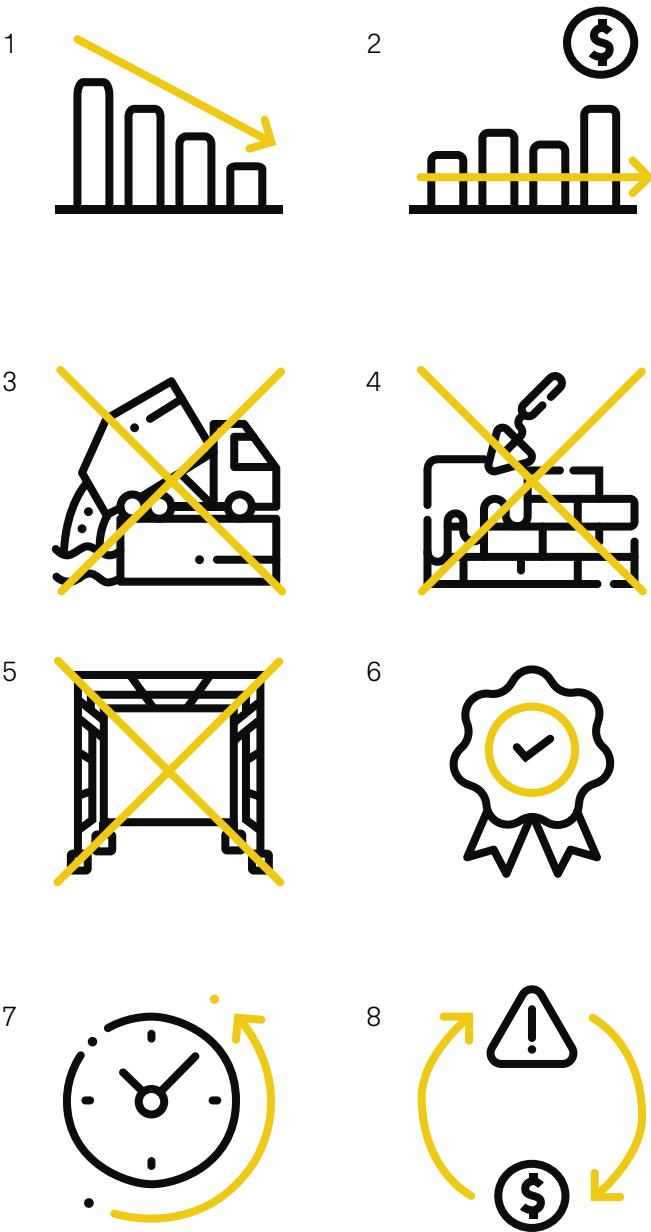
5_ No scaffolding required

7_ Reduction of the construction timeline
- 2_ Financial certainty

4_ Reduction of material losses and rework in construction

6_ High-quality standards

8_ Reduction of trades and on-site risk



Types of modules

Our technical department will collaborate with the project drafting team to help define the necessary module types based on the project's constraints. Below are some common types:



Opaque



Coronation



Window



Corner



Vertical balcony



Start

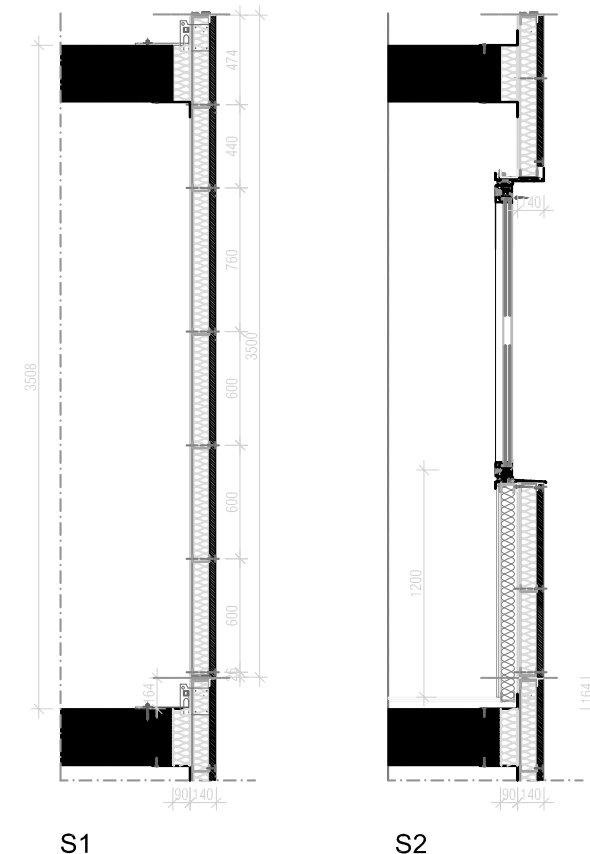
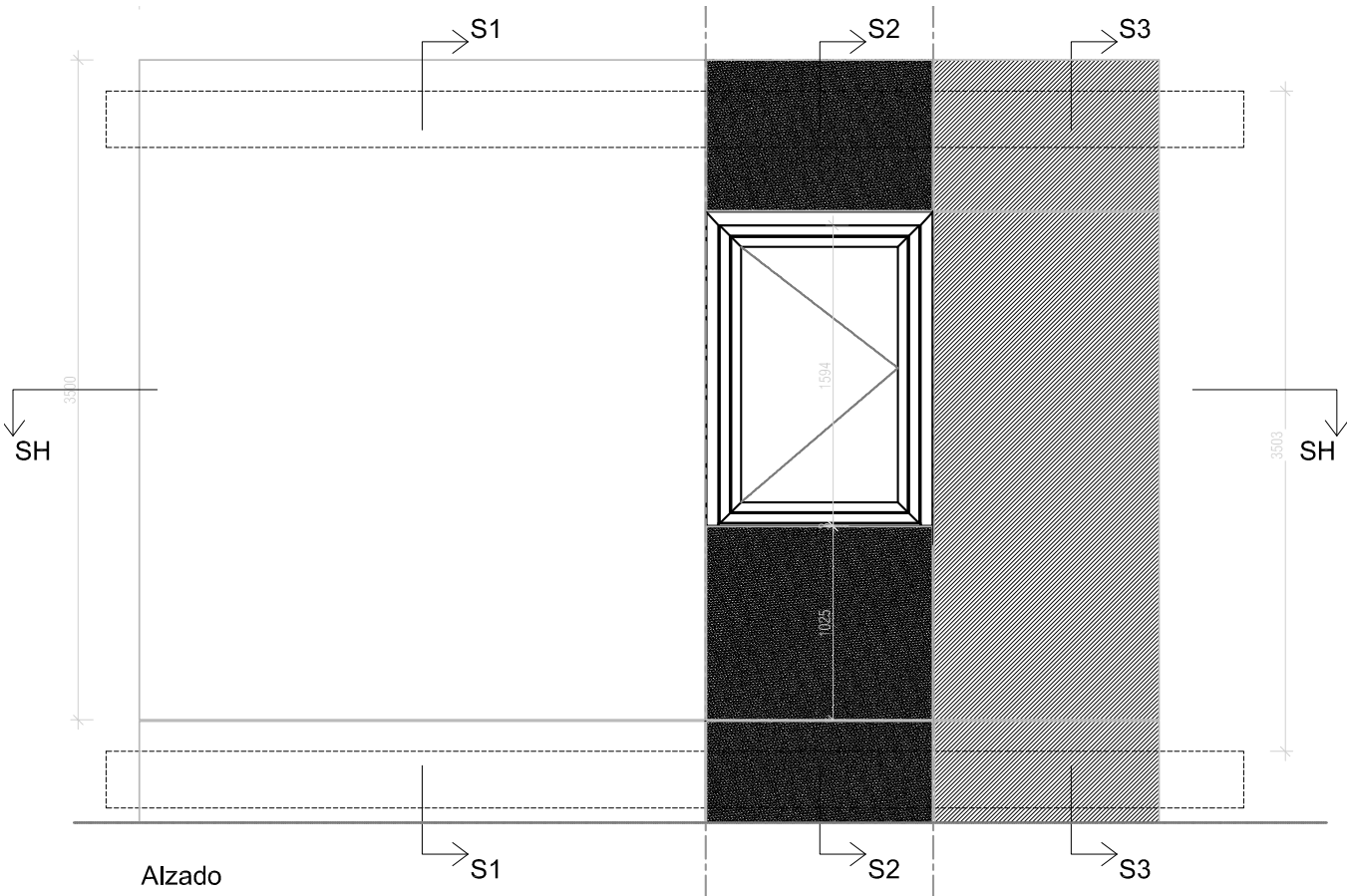


Sliding balcony door



Balcony





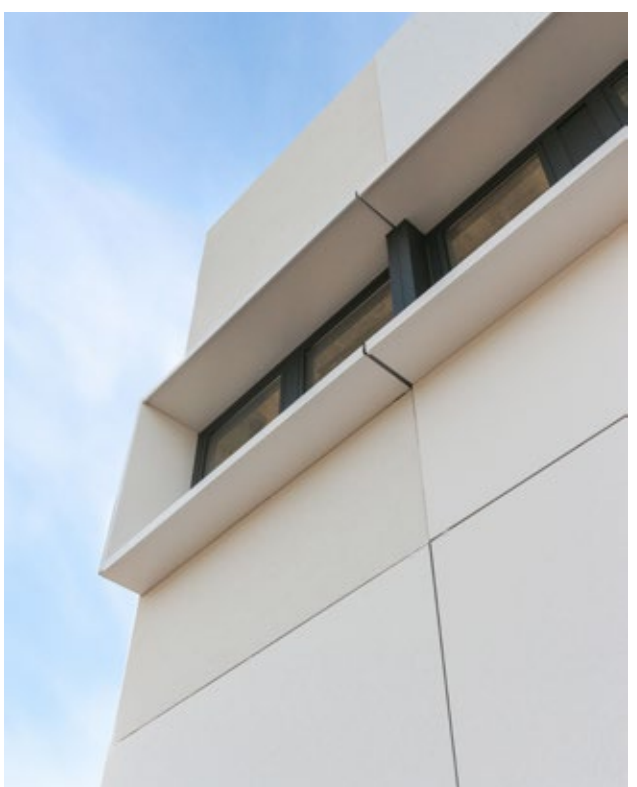
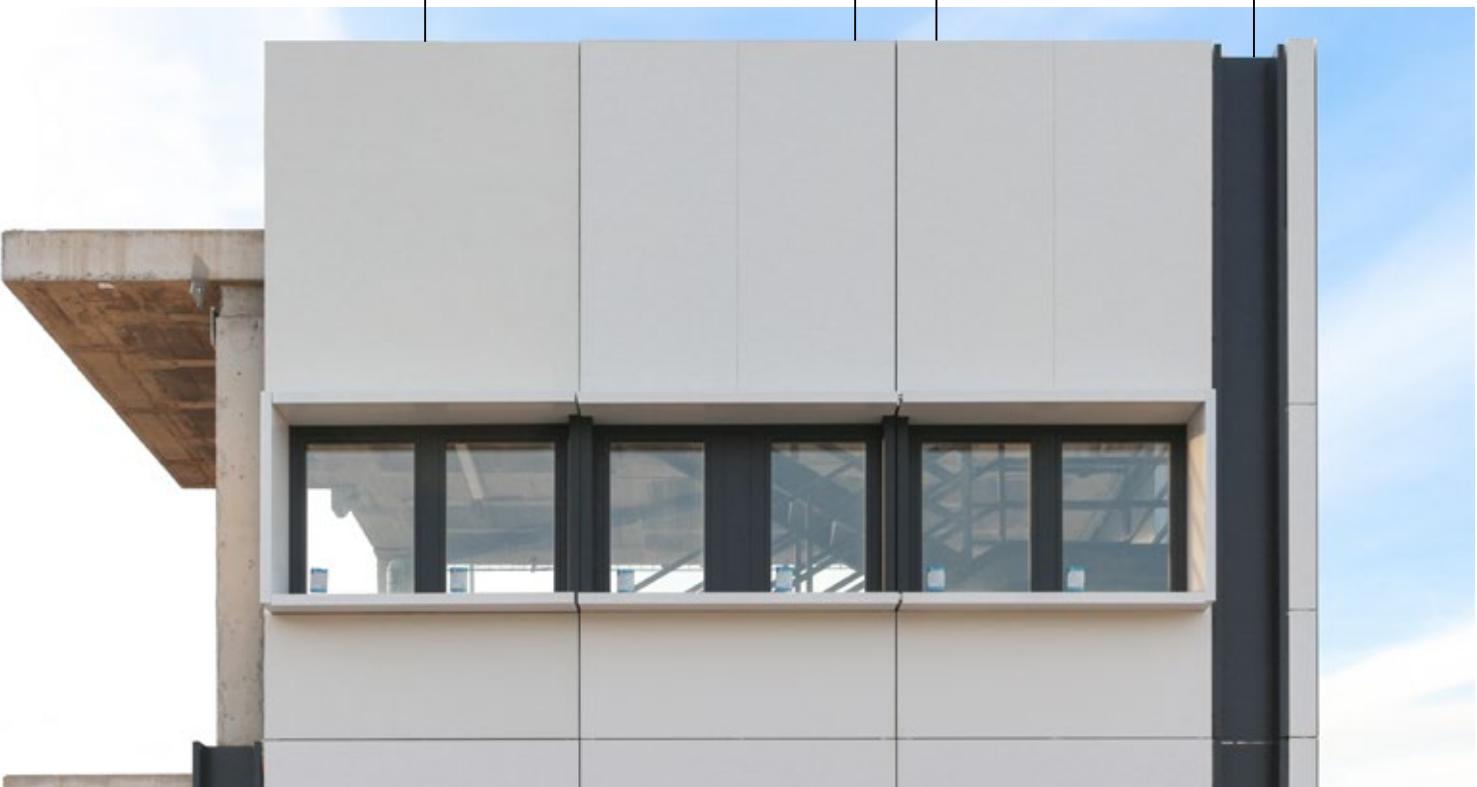
Modular system with SATE

Industrialized system of multilayer panels and anchoring system to the main structure. The panels are composed of a cold S275 galvanized steel metal frame: formed by 1.2mm thick “C” perimeter profiles and horizontal “C” crossbars of 1.2mm thickness. Interior composed of an inner layer of mineral wool ($e=9\text{cm}$, $d=40\text{kg/m}^3$), closed with a gypsum-cardboard plate. External finish of SATE. The 3cm thick XPS panel is fixed to the frames with screws and has an aluminum perimeter metal frame. External SATE finish with acrylic paint on mesh and mortar. Includes perimeter sealing of the panel with a 22mm neoprene joint system (horizontal and vertical joints) and internal sealing. Joints between modules of 10mm (horizontal and vertical joints). Includes fixing to slabs using hot-dip galvanized steel S275 anchoring plates that allow adjustment in the three Cartesian axes. Includes ceramic shrinkage, setting out of anchors on site, installation of modules and internal sealing of joints between panels.

Includes pre-window frame. Perimeter metal profile in window opening, as support for carpentry fixation and window surround. Cold galvanized steel S275 profile.

Includes metallic reinforcement in corner panels, both for “L” shaped panels and chamfered panels, using cold S275 galvanized steel profiles.

SATE
Ceramic
Finishing trim with aluminum composite



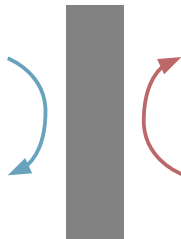
Our system can be **adapted to create a wide variety of envelope shapes and compositions**: flat shapes with ceramic, curved shapes with KRION, and with any other material required. This includes carpentry and window glass as well.



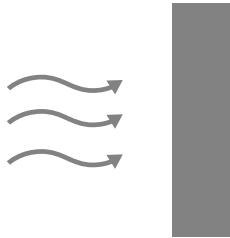


Regulations and Testing

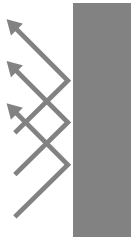
WEATHER RESISTANCE



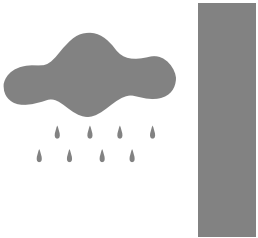
Thermal performance
with back lining
(UNE-EN 12631)
U global = 0,36 w/m2 k



Air permeability
(UNE-EN 12153:2000)
750 Pa Clase AE

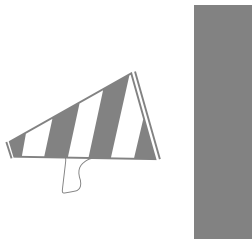


Wind load resistance
(UNE-EN 12179:2000)
1500Pa y - 1.500Pa



Water tightness under
static air pressure
(UNE-EN 12155:2000)
750Pa-RE750

TESTING



Sound resistance
with cladding
RA, tr: 51,7 dBA



Fire reaction
(EN 13823:2010+A1:2014)
Euroclase B-s1-d0



Fire resistance
EI60 (EN 13501-2:2016)

*Valid tests for the system with ceramics.

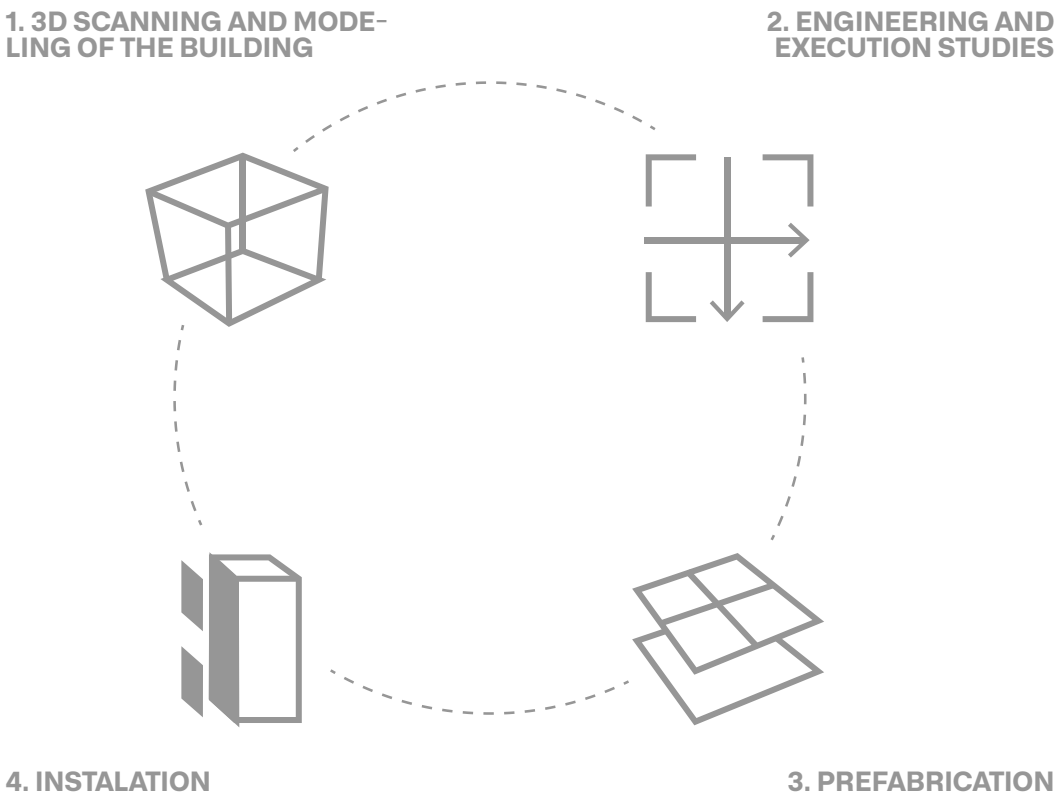
**Data for 120 mm panel and 70 mm backing

- _ No waste
- _ No need for scaffolding
- _ Lightweight system 45 - 55 kg/m²
- _ Low thickness - High efficiency
- _ Self-supporting
- _ Comprehensive solution with windows and railings
- _ Resolution of reveals
- _ Single point of contact
- _ Installation efficiency on-site between 70 and 100 m² per team/day
- _ Adjustment in all three axes (X, Y, Z)
- _ Unique warranty from PORCELANOSA

Advantages of the system

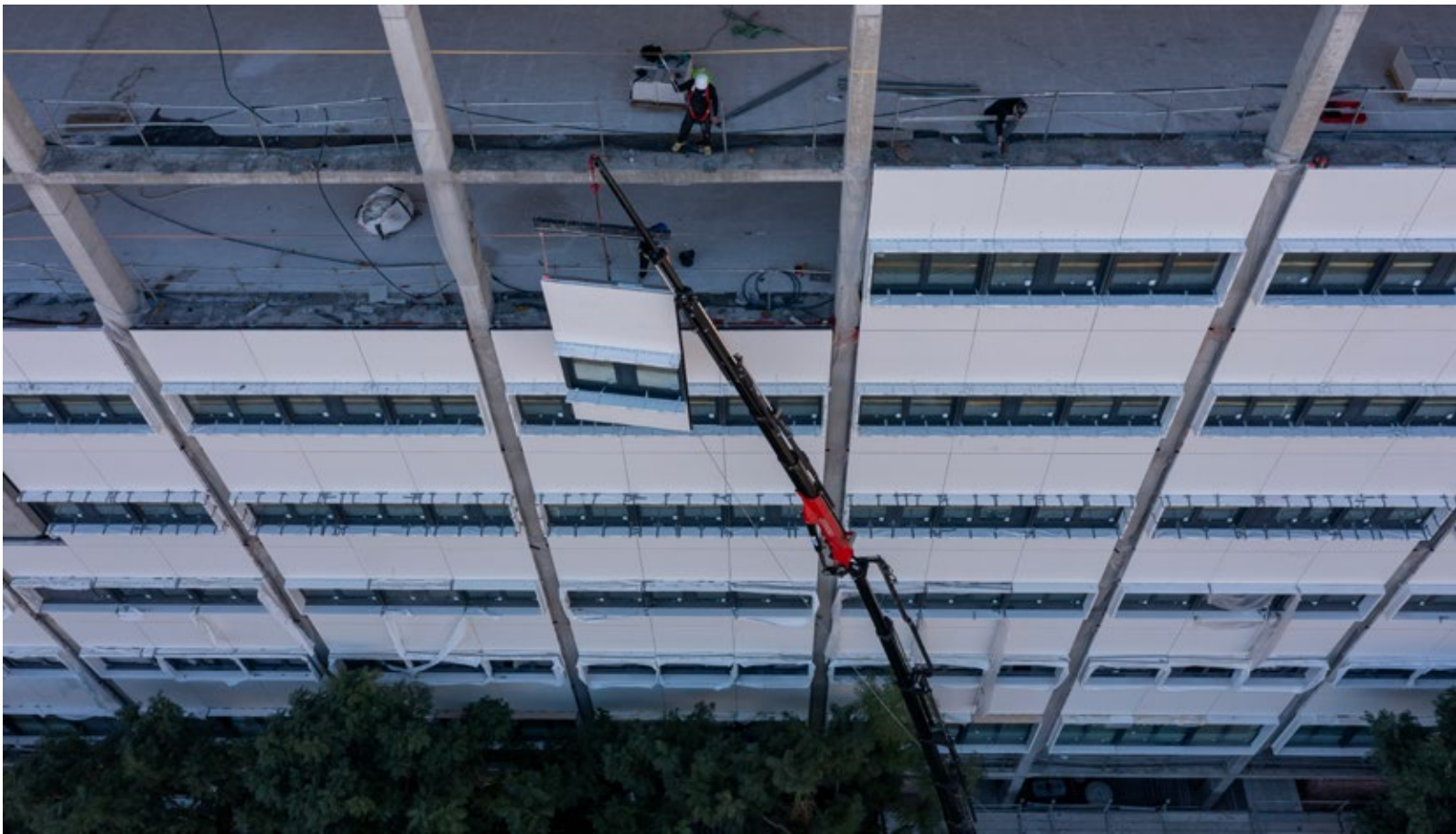


Digitization to enable industrialization

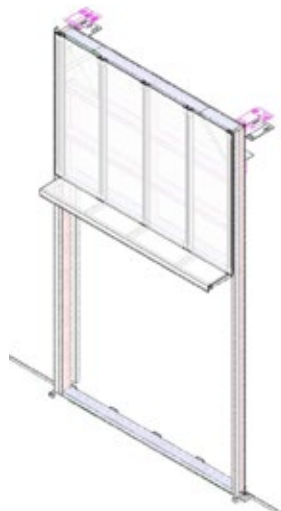


To make the industrialization process effective, it is necessary to digitize the technical design process using BIM tools, parametrizing 2D and 3D graphic production to achieve good coordination between the technical office, production, and on-site assembly.

From the execution project, a customized technical solution is developed for each project with a series of standard modules. A parametric 3D model will be created for each module, allowing real measurements to be taken on-site of the executed structure, and the required information for module production will be obtained in real-time. The production performance will be synchronized with assembly and transportation as needed for the project.



OPAQUE



START



NORMAL



Production



MODFACADES PRODUCTION LINE

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on-site of the executed structure, and the required information for module production will be obtained in real-time. The production performance will be synchronized with assembly and transportation as needed for the project.

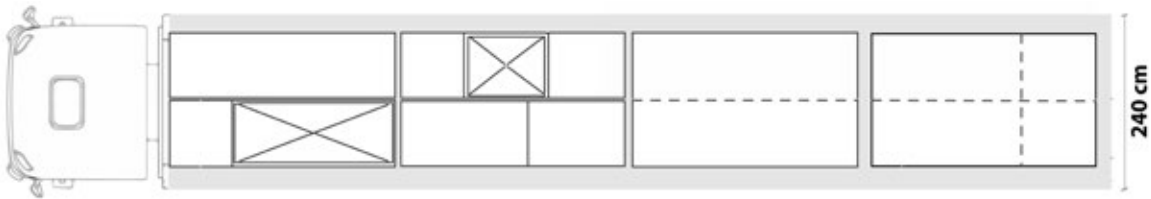




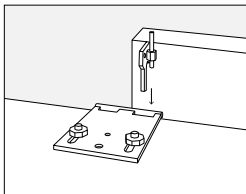
Transport

The transport cage system allows for direct unloading and loading of the modules for hoisting and placement at the construction site. It enables transport by truck of between 9 and 15 modules and storage on-site up to 6 heights.

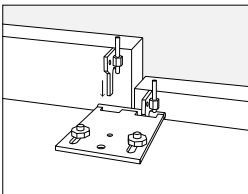
The storage and transportation systems are tailored to the logistical and construction needs of each project to ensure complete optimization in transportation.



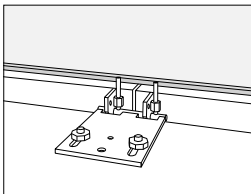
Assembly



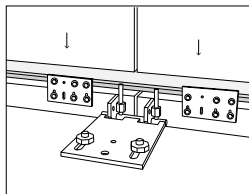
Laying out the anchoring plates, ensuring they are plumb and level with each other. The modules are always installed in the same direction. The recesses in the plate allow for adjustment of the protrusion.



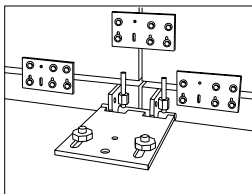
The module's claws have leveling bolts to adjust the level with millimetric precision.



After placing the modules of one level, the continuous horizontal neoprene joint is installed between them.



Placement of the modules of the upper level.



Screwing of tie plates between modules.

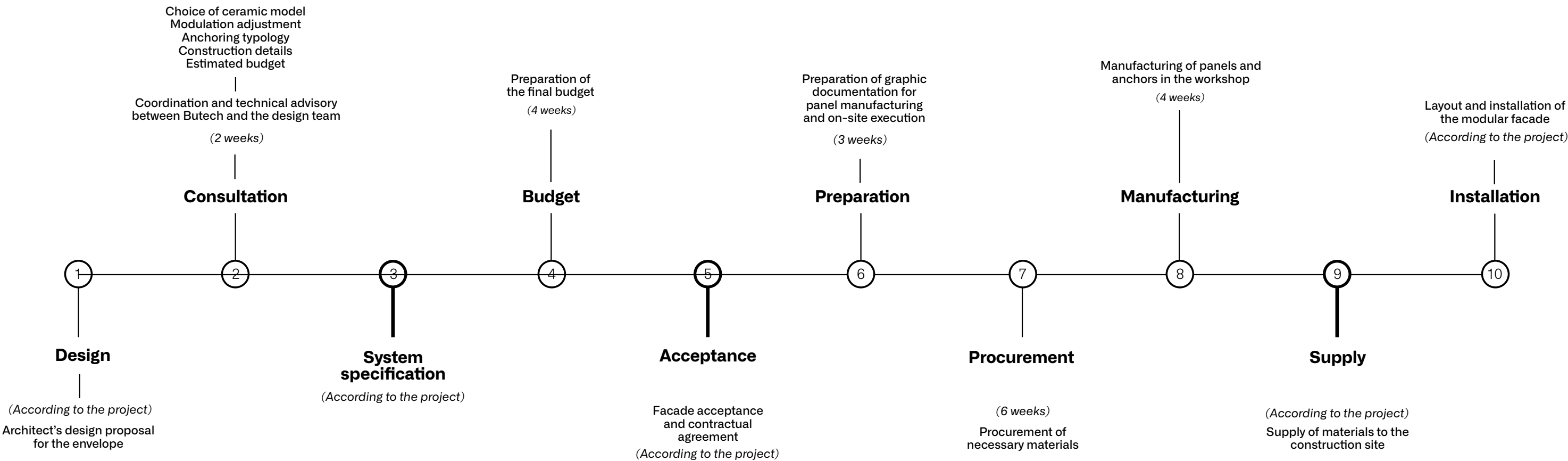


Before starting the manufacturing process, on-site measurements are taken to adjust the height and width of the modules to the actual dimensions of the construction.

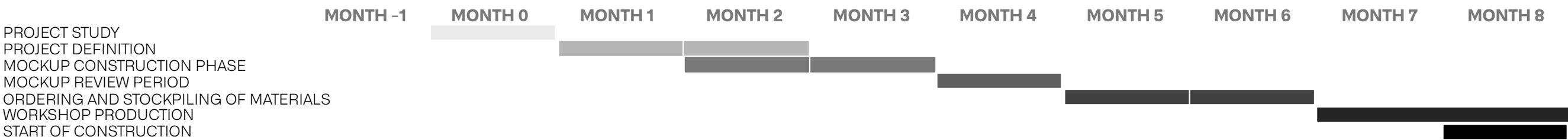
The assembly process of the modules is carried out by hoisting them with a crane and receiving them by our operators from the inside, without the need for scaffolding.



Timelines



INDUSTRIALIZED FACADE PLANNING



What do we offer?

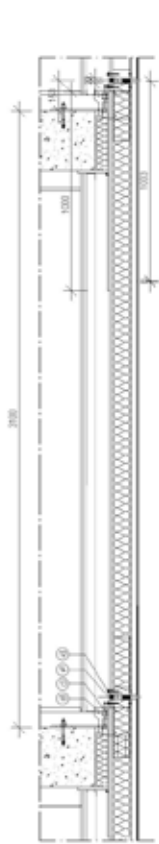
TECHNICAL TEAM

A team of professionals composed of architects, architectural technicians, engineers, and skilled construction workers specialized in architecture & construction.

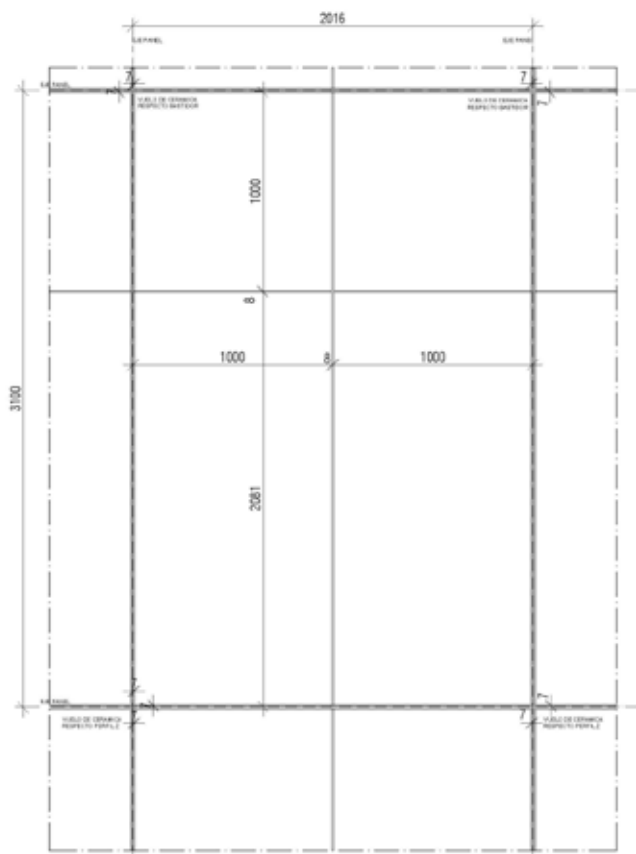
- _ Advisory and design
- _ Engineering
- _ Manufacturing
- _ Execution quality
- _ Timeliness safety
- _ Implementation
- _ Cost control
- _ PORCELANOSA warranty



VERTICAL SECTION TYPE
OPAQUE AREA



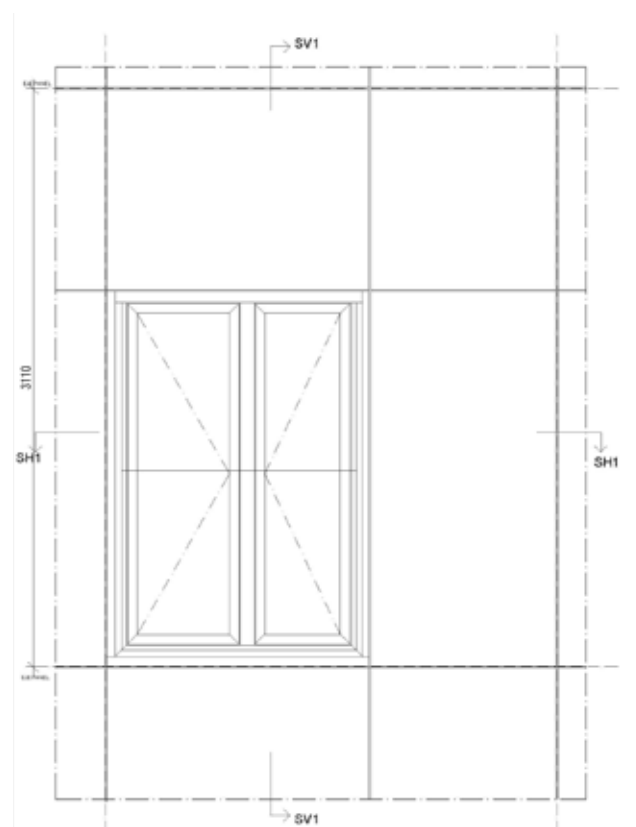
ELEVATION TYPE



VERTICAL SECTION TYPE
WINDOW AREA



WINDOW TYPE



What do we offer?

Our commitment goes beyond simple supply; we specialize in offering customized solutions and creating special pieces to adapt to the specific needs of each project. We strive to educate our clients, providing them with the necessary knowledge about our products and systems, from their characteristics to the most effective installation techniques.

Product installation is another crucial aspect of our service. We have a team of highly skilled professionals who ensure that the installation is carried out flawlessly, adhering to the project's specifications and expectations.

And, of course, we conduct detailed on-site measurements to ensure that everything fits perfectly within the space and existing conditions.

Specification



MODULAR INDUSTRIALIZED FACADE WITH CARPENTRY AND VENTILATED FACADE WITH C/XLIGHT 120 CM X 270 CM

Industrialized multilayer panel system and anchoring system to the main structure of the building, with modulation according to approved graphic documentation by the D.F., with water tightness of 750 Pa according to UNE-EN 12155:2000 (RE 750), air permeability class AE (UNE-EN 12153:2000 > 600Pa), wind load resistance of 1,500 Pa (UNE-EN 12179:2000), fire reaction B-s1, d0, according to UNE-EN 13501-1 and fire resistance EI60 in the 1-meter height zone for separating fire sectors, according to UNE-EN 13501-2.

The modular panels will consist of a frame formed by cold galvanized steel S275 perimeter profiles and “U” type crossbars with a thickness of 1.2mm, riveted together, thermal insulation composed of an internal layer of rock wool (e=9cm, d=40kg/m³ thermal conductivity of 0.035 W / (m•K), fire reaction A1), gypsum board screwed to the metal frame on the inside face of the module, waterproof polyethylene sheet type DuPont™ Tyvek®, attached to the metal frame on the outside face of the module using double-sided butyl adhesive tape and Butech ventilated facade system, consisting of a porcelain XLIGHT sheet cladding, model chosen by the supervisory authority, nominal format 120 x 270 cm, thickness 6 mm, breaking strength greater than 1,100 N, breaking modulus greater than 45 N/mm², with very low water absorption, less than 0.1%, and a placement joint of at least 8 mm; chemically adhered with MS polymer adhesive and double-sided tape to a structure of lacquered black aluminum profiles 6005AT6, omega or Z type, fixed to the frame with EPDM washers and self-drilling screws forming an open 3 cm thick chamber, and placed on a support and safety profile. Including perimeter joints for sealing between modules formed by double band CAU EPDM 75 RE-41 (Closed cell, e=15mm and density 95 Kg/m³) and CAU EPDM 90 SC (Semi-closed cell, e=25mm and density 60 Kg/m³) with a thickness of 20 mm that are hidden by the ceramic cladding of the ventilated facade. The modules will be fixed to the building structure using hot-dip galvanized steel S275 anchoring plates that allow adjustment in all three Cartesian axes with 3 cm adjustments.

In the vertical direction, there will be a 3 cm adjustment, and in the horizontal direction, leaving a 28 mm separation joint and a 6 to 12 cm chamber between the edge of the slab and the facade module, they will be joined together by galvanized steel plates screwed to the two adjacent modules. The joints between the facade elements will be sealed internally with neutral silicone and joint filler.

The facade modules will include windows, according to project measurements and graphic documentation, compatible with the Butech modular industrialized facade system, with the possibility of accommodating a roller shutter box, laminated glass railing, and reveals, according to project specifications. It includes on-site installation of fully finished panels and ceramic waste provision. It does not include auxiliary means or interior lining. Optionally, after a project study, it may include starting and/or topping finishes and EI60 fire compartmentalization consisting of: 1 mm thick galvanized steel sheet on the underside and top of the slab, sealing the interior joint of the panels in the 1m height strip with gypsum board, fire-resistant spray projected onto the upper steel sheet, and filling the slab edge chamber with rock wool with a minimum thickness of 6 cm.



**WHAT DO WE NEED TO CARRY
OUT THE STUDY?**

- _ Graphic project documentation in 2D or 3D with elevations and defined openings.
- _ Definition of the type of windows and glass desired.
- _ Carpentry specification.
- _ Plans in .dwg or Revit project.
- _ Technical description of carpentry and glass.
- _ Carpentry schedule.
- _ Existence of blinds and, if applicable, their type.

DESIGN CONSIDERATIONS:

- _ Facade that extends continuously in front of the slabs.
- _ Module thickness of 15 cm, which can be greater if necessary.
- _ Space between the back of the module and the front of the slab of 9 cm.
- _ Distance between the front of the slab and the exterior finishing line of 24 cm.
- _ Adjustable system at least +/-3cm in all three spatial axes.
- _ Approximate weight of the system of 50 kg/m².
- _ Horizontal joint 15 cm above the edge of the slab.



**What do
we need?**





**HOTEL & SPA
CASTILLO DE PEÑÍSCOLA**

Peñíscola, España
Architecture: Gry Asociados



BERKSHIRE HOUSE

Maidenhead,
United Kingdom
Architecture: Goddard Manton Architects
Photography: AA Creative



WATFORD FOOTBALL STADIUM

Hertfordshire,
United Kingdom
Photography: Joel Knight





HOSPITAL CLÍNICO

Valencia, España
Architecture: FJ Jiménez Arquitectura & AIC Equip





CEIP PIO XII

Nules, España
Architecture: Raul Flich



CEIP JAUME I

Nules, España
Architecture: Raul Flich



MODFACADES
Industrialized Facade
Modular System

