

PREFABRICATED STRUCTURES AND HOUSES

# STEEL MODULES

### > Any distribution and composition are possible.

The model allows compositions of one or two modules measuring between 8.15 and 13.15 metres long and up to 4.5 metres wide.

For larger compositions, the model allows several modules measuring a maximum of 13.15 x 5.00 metres to be put together in any arrangement, achieving any area and adapting to any plot.

For all models there is the possibility of installing an additional porch for enjoying the outdoors on warm days.

### > Thermally insulated with good energy efficiency

They are largely made of steel sandwich panels with a core of high-density polyurethane – a good insulator – plus aluminium windows with thermal break and double glazing with reinforced insulation glass. In this way, these houses achieve heat transmission values exceeding any possible requirement in any hot or cold climate.



### > Noise insulation

Apart from thermal insulation, rock wool provides excellent noise insulation.

The internal walls and sealed doors provide noise insulation between the different rooms. The external walls and ceiling, together with the sealed windows and doors, achieve a tremendous reduction in noise from outside.

### > Durable

The galvanised steel, aluminium and reinforced cement used on the outside of the house are materials resistant to chemical agents. They also do not oxidise and have great mechanical strength, ensuring that they stay intact.

The use of composite aluminium panels with PvdF lacquer on facades means they remain in the same condition as on the first day and the passing of the years is barely noticed.

### > Safe from fire

The use of non-flammable materials such as plasterboard, cement and mineral rock wool, and other slow combustion materials like timber make it possible to isolate the load-bearing elements from fire, allowing an evacuation time for occupants in accordance with the Technical Building Code. For this reason, our houses are extremely safe in the case of fire.

**> Safe against attacks**

The steel used on the outside is a strong, protective material. The aluminium windows and doors with various closure elements and the option for thick, laminated glass windows offer the security of protection against external agents.

**> Bright**

Large, easy-opening windows allow in plenty of light without compromising insulation or security.

**> Versatile**

MasterClass is developed to meet all customers' specific needs. Distributions and finishes can be custom designed. Apart from homes, we can build offices, laboratories, shops, restaurants and many other types of building.

**> Easy to maintain**

The use of tested, certified materials together with our assembly and quality control systems mean our homes hardly require maintenance.

The straight lines and smooth surfaces in their finishes, both inside and out, mean they are easier and more convenient to clean.

**> Ecological**

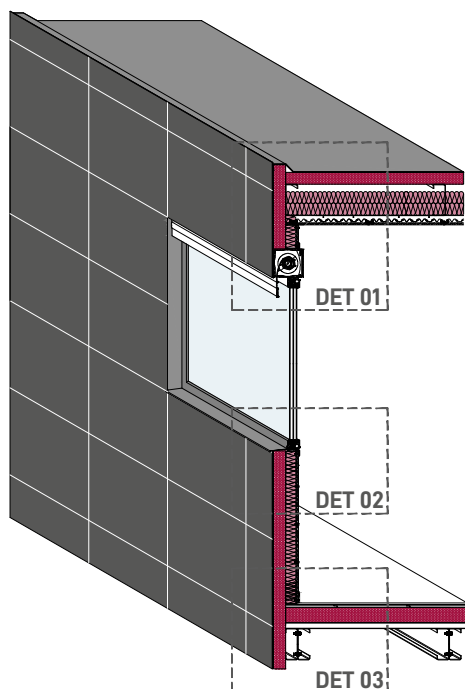
They are manufactured using sustainable construction systems at the factory, avoiding environmental impact on the ground, optimising resources and managing waste correctly. They use large quantities of recyclable materials.

Water-saving taps are included in their equipment. LED lighting for lower energy use.

With the option of heating systems using renewable energies, such as aerothermal and biomass.



## Build sections



### ROOF SYSTEM

<b>C01</b> One-piece EPDM sheet	
<b>C02</b> 80 mm steel/PIR panel	$U=0,27 \text{ W/m}^2\text{K}$
<b>C03</b> 160 mm rock wool	$U=0,25 \text{ W/m}^2\text{K}$
<b>C04</b> Galvanised steel profile $h=200 \text{ mm}$	
<b>C05</b> Plasterboard false ceiling	
ROOF TRANSMITTANCE	$U=0,143 \text{ W/m}^2\text{K}$

### WINDOW SYSTEM

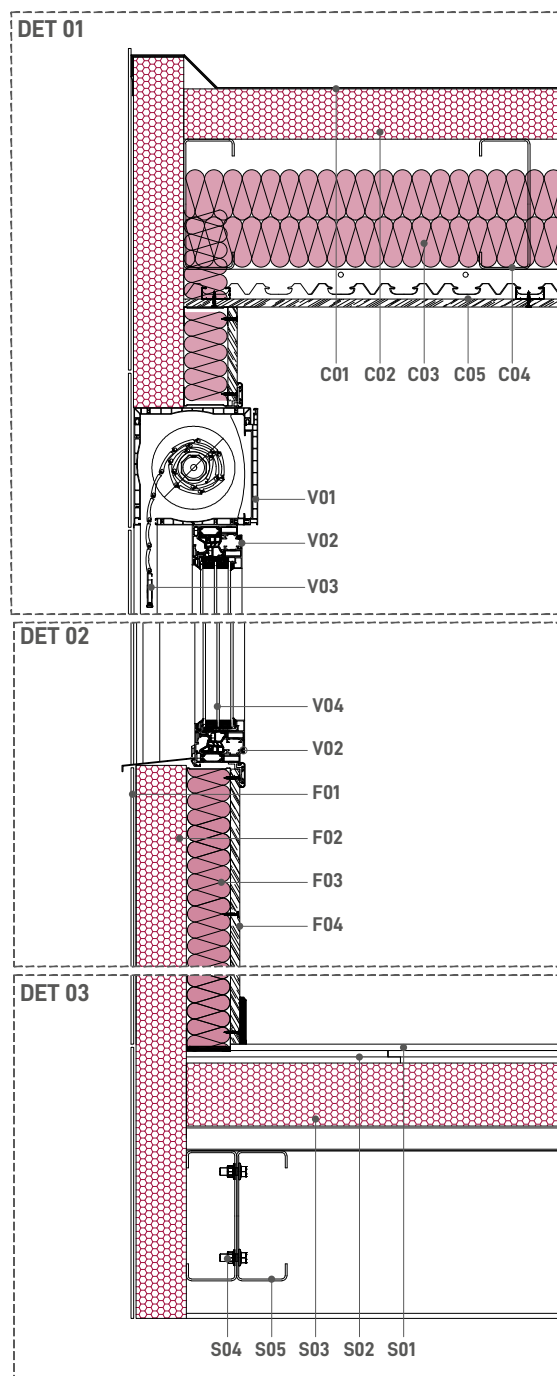
<b>V01</b> Insulated motorised shutter housing	$U=1,10 \text{ W/m}^2\text{K}$
<b>V02</b> 72mm aluminium carpentry with thermal break.	$U=1,54 \text{ W/m}^2\text{K}$
<b>V03</b> Aluminium shutter with HD insulation	
<b>V04</b> Guardian Sun glass	
4 / 18 Argon / 4 / 28 Argon / 4 Premium	$U=0,50 \text{ W/m}^2\text{K}$
WINDOW TRANSMITTANCE 1.4x1.2 m	$U=0,776 \text{ W/m}^2\text{K}$

### FACADE SYSTEM

<b>F01</b> Aluminium composite panel	
<b>F02</b> 80 mm steel/PIR panel	$U=0,27 \text{ W/m}^2\text{K}$
<b>F03</b> 70 mm rock wool	$U=0,51 \text{ W/m}^2\text{K}$
<b>F04</b> 15 mm Placo Habito plasterboard.	
FACADE TRANSMITTANCE	$U=0,176 \text{ W/m}^2\text{K}$

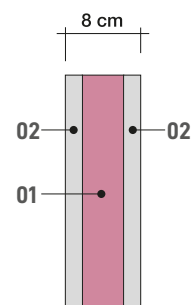
### FLOOR SYSTEM

<b>S01</b> Egger Aqua+ floating parquet	
<b>S02</b> 20 mm plaster/fibre slab panels	
<b>S03</b> 100 mm steel/PUR panel	$U=0,22 \text{ W/m}^2\text{K}$
<b>S04</b> Bolted joint	
<b>S05</b> Galvanised steel profile $h=200 \text{ mm}$	
FLOOR TRANSMITTANCE	$U=0,219 \text{ W/m}^2\text{K}$



### INTERNAL WALLS

- 01** 48 mm mineral rock wool insulation
- 02** 15 mm plasterboard sheet



## Standard equipment

**Structure:** Made of a frame of galvanised, cold-formed steel profiles (in accordance with the UNE EN-1090 standard, S280 GD type steel, hot galvanised Z275, in accordance with EN10346) with screwed joints (DIN6923 and DIN6921, 8.8 galvanisation quality), on roofs and floors. The whole structure, inside and out, is free of oxidisation and corrosion. Hot-rolled carbon steel pillars, blasted and painted, profile UPN160 S275JR. Dimensioned in accordance with CTE for areas of 1,000 above sea level. All the loads in the structure are transmitted to the pillars, allowing foundations using shoes. There is even the possibility of creating basements or siting them on uneven ground, as they need neither a slab nor a base in order to be installed.

**Floor:** Beams made of galvanised, cold-formed profiles, sandwich panel in lacquered, galvanised steel with 100 mm high-density PUR core. Dry floating slab formed by conglomerate plaster panels with 10+10 mm cellulose fibres glued with polyurethane adhesive and screwed together. Polyethylene foam underlay. 8 mm AC4/33/23 class Egger Aqua+ floating parquet of the thickness suitable for use in kitchens and bathrooms. Bathroom floors made of the same parquet with sealed joints. Optional porcelain ceramic flooring.

**Facade:** From inside out. Consisting of aluminium composite panel with PvdF coating (option of porcelain ceramic panels reinforced with glass fibre mesh, or Moka cream marble) structurally fixed to a sandwich panel of lacquered galvanised steel with an 80 mm PIR foam core (reaction to fire Bs1d0), 70 mm galvanised steel mountings to create another layer of rock wool insulation. Backed with 15 mm Placo Habito reinforced plasterboard. This board accepts

heavy loads hung on it and is highly resistant to impact.

**Roof:** Flat, created with 1.2 mm black EPDM sheet stuck on to a lacquered, galvanised steel roof sandwich panel with an 80 mm PIR foam core (reaction to fire Bs1d0), and air chamber with two 80 mm rock wool layers and 13 mm plasterboard sheet, screwed to galvanised metal profile. Height inside the house: 2.5 metres.

**Internal divisions:** Partition walls formed by 15 mm Placo Habito reinforced plasterboard, 48 mm mounting with 45 mm rock wool and an identical sheet of plasterboard on the other side. In damp areas, the sheets are waterproofed. Walls and ceilings finished in washable matt white plastic paint. Bathrooms and kitchen splashbacks tiled in composite aluminium and porcelain ceramic.

**External carpentry:** Itesal 72HO-RPT 72 mm section aluminium windows with thermal break. These windows combine the advantages of aluminium (less exposed section of profile, durability, larger openings, thicker glass, etc.) with better thermal insulation than a PVC window of the same size and section.

Tilts 140 cm wide by 115 cm high (in the living room, bedrooms and kitchen) with Guardian triple glazing and double chamber Sun 4 mm / 18 mm Argon / 4 mm / 18 mm Argon / 4 mm- ClimaguardPremium.

Living room window, 198 cm or 298 cm wide depending on model and 215 cm high formed by a fixed section and entrance door with triple glazing GuardianSun 4+ 4 mm / 14 mm Argon / 4 mm / 14 mm Argon / 4+4 mm ClimaguardPremium or, as an option without additional cost

## Standard equipment

Itesal 61-EVO-RPT series sliding window with thermal break, three-point lock and Guardian-Sun 4+4 mm / 15 mm Argon / 4 mm Tempered glazing (this option has less thermal insulation).

Motorised shutters made of aluminium strips with high-density polyurethane core throughout; compact, sealed housing with low thermal transmittance (1.1-0.88 W/m<sup>2</sup>/kg); and good noise insulation (31.6-37 dBA).

Hinged entrance door with thermal break, aluminium panel with phenol plywood core and three-point security lock.

**Internal carpentry:** Hinged laminated conglomerate doors 35 mm with sealed joint, opening full-height to ceiling.

Suspended sliding doors with guide and frame in silver-coloured aluminium and 4+4 laminated sheet glass and shock-absorption opening and closing system.

Sliding built-in laminated wood wardrobe doors with aluminium rails and handles, equipped with gradual soft-close system.

Wardrobe interiors with bar, height-adjustable shelves and soft-close drawers.

**Bathrooms:** Countertop white porcelain wash basin. Suspended chests of drawers with mirror unit. Roca "The Gap" comfortable white porcelain toilet. Non-slip gel-coat resin shower tray, flush with the floor. Chrome-coloured aluminium shower screens with safety glass. Grohe taps with water-saving system.

**Kitchen:** Equipped with high and low units with high-capacity soft-close drawers.

Zimbabwe or similar black granite countertops

with undermount stainless steel sink.

The Teka Integra extractor hood integrated into a unit and Bosch ceramic hob are included as standard.

**Plumbing:** Cold and hot water circuit in multilayer polybutylene pipes coated in Uponor Quick & Easy insulation, with stopcocks in every room and square-headed stopcocks on each piece of equipment. Grohe ecological mixer taps with cold opening system. PVC toilet drains and downpipes.

**Electricity:** Installation protected with general thermo-magnetic switch and thermo-magnetic switches on each independent circuit. Protection against indirect contact with 30 mA sensitivity differential switches and pre-installed earth. Over-voltage protection system. Schneider Electric D-Life and Jung LS990 electrical mechanism series. The whole installation is carried out in accordance with the low-voltage electro-technical regulations. Lighting using Osram Ledvance 22 W LED downlights.

**Heating:** Mitsubishi Electric aerothermal hot and cold heat pump air conditioning system with air channelled through soundproofed conduits with adjustable jets in each room.

Using a circuit of R32 refrigerating gas, this system extracts energy from the air outside and uses it to heat and cool the inside. It is electrically operated and offers 4 kilowatts of heat or cold for every kilowatt of power used, operating between -15°C and +46°C. Controlled by multi-function remote control and weekly programmer. Possibility of operation via the internet.

## Equipamiento de serie

**Ventilation:** Dynamic ventilation system using a Mitsubishi Electric enthalpy exchanger making use of the temperature and humidity conditions of the building to pre-condition the renewed air from outside. This system is used in Passivhaus-type homes.

**Domestic hot water:** Domestic hot water produced by Ariston 110-litre aerotherm independent of the air conditioning system. It has an operating system similar to that of the air conditioning heat pump with similar performance.

As it is independent of the air conditioning system it has the advantage that in the summer the air conditioning system has to produce cold only, without needing to produce hot water.

## Optional equipment

**Porch (optional):** Galvanised steel structure, floor in 20 mm thick porcelain ceramic supported on metal substructure. Made to look similar to the house. Optional security glass rail held in aluminium profile hidden in the floor.

**Facade (optional):** Cladding with porcelain or natural stone plaques.

**Furniture (optional):** Lounge with sofas, tables, chairs, coffee table and living room unit. Bedrooms with beds (mattress support, mattress, stuffing, quilt and cover) and bedside tables with drawers. Screen fabric roller blinds at all windows.

**Floor (optional):** Optional radiant/cooling floor.

**External carpentry (optional):** Reinforced door.

**Kitchen (optional):** Pack of domestic appliances: integrated fridge, washing machine and dishwasher, Bosch oven and microwave.

\*Materials suitable for building passive houses.

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