

Terraqua Modular

Technical Catalogue

Terraqua One 47

House “Terraqua One 47”

(Fiberglass/MgO board prefabricated house)

Living area 47.60m², Terrace 38m², Building area 85.6m²



TERRAQUA MODULAR, Meža street 4/2, Salaspils, Latvia, LV- 2169

FLOAT

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GROUND



LIVING ROOM

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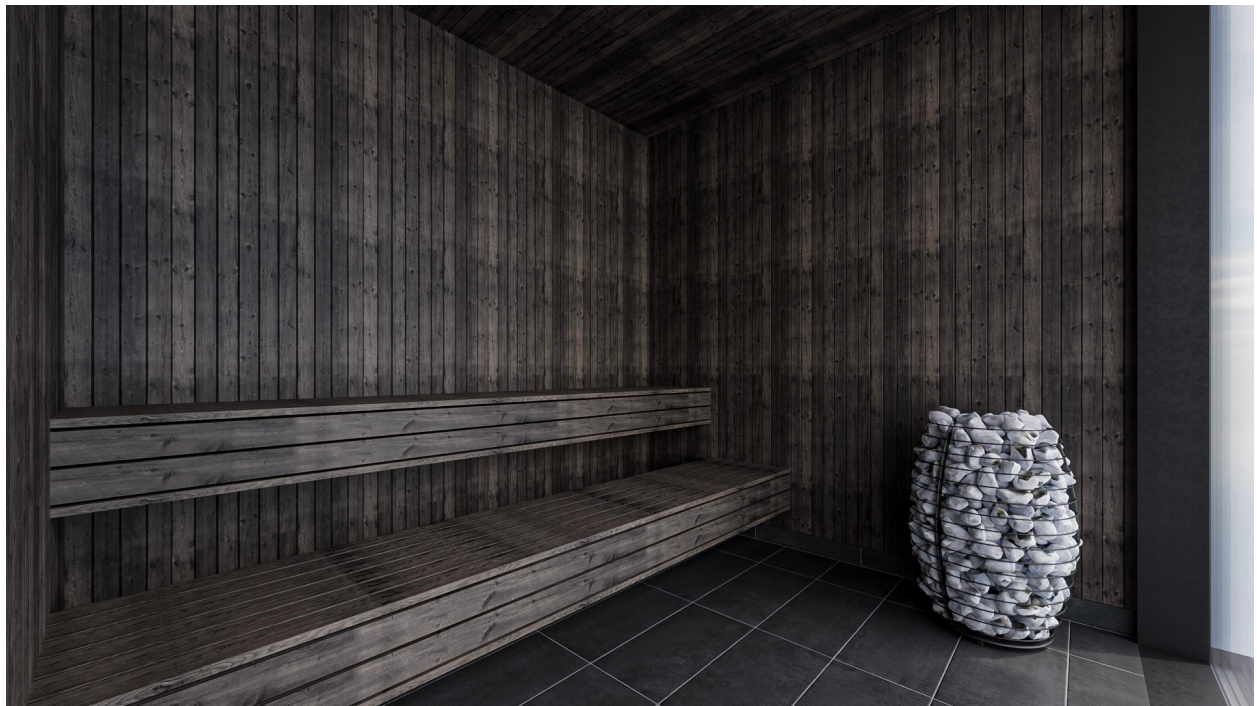
BEDROOM



BATHROOM

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SAUNA



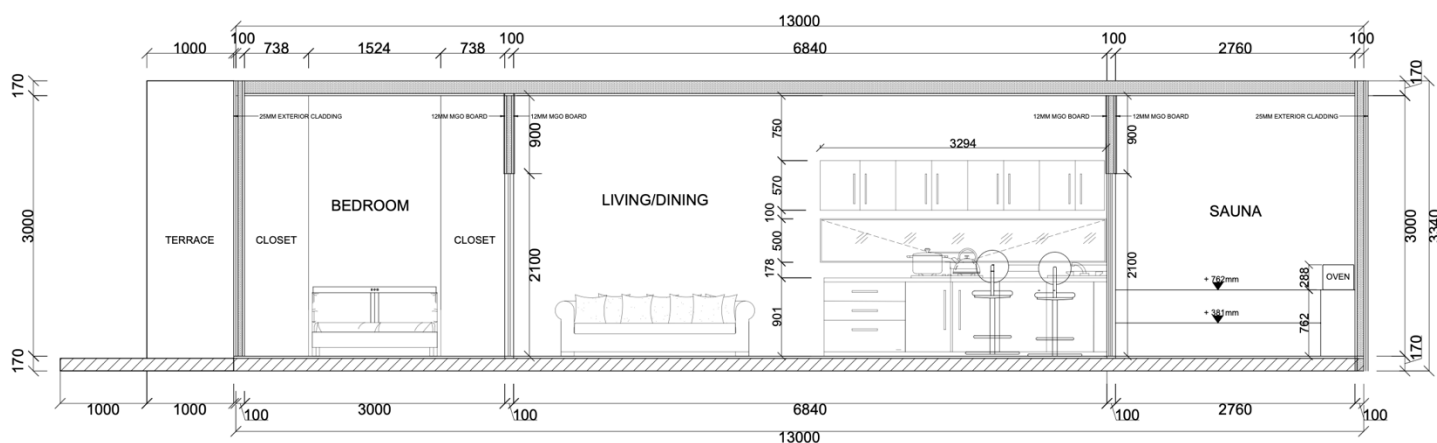
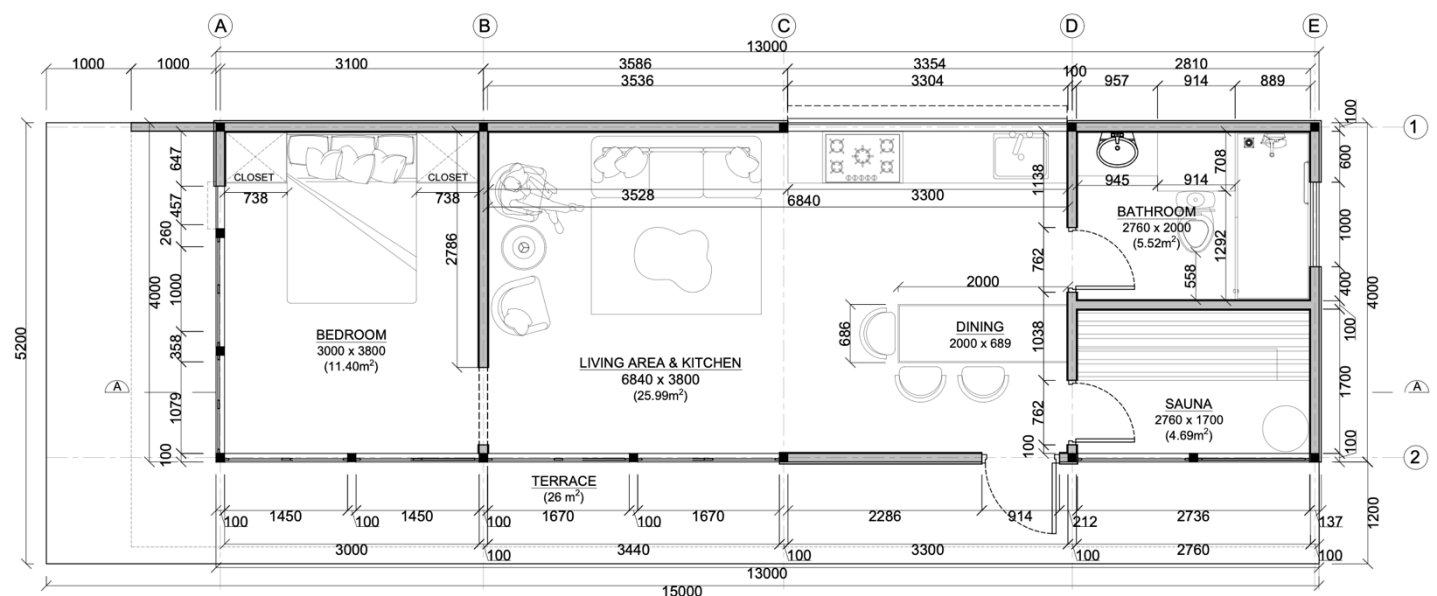
LAYOUT

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FLOOR LAYOUT PLAN

NO.	DESCRIPTION	SIZE
01	BEDROOM	11.40 SQ.M
02	KITCHEN+LIVING AREA	25.99 SQ.M
03	BATHROOM	5.52 SQ.M
04	SAUNA	4.69 SQ.M
TOTAL		47.60 SQ.M



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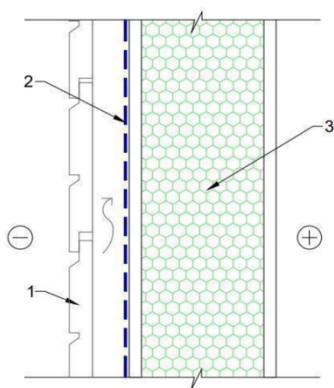
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Description of used materials for prefabricated house

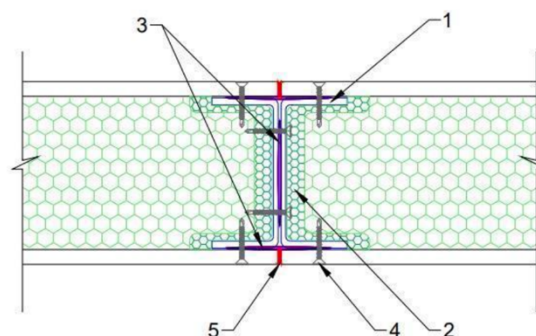
Terraqua structural system combines a pultruded fiberglass-reinforced composite frame with EC3 panels, mechanically fastening the wall, floor, and roof elements into a rigid, durable prefabricated shell. House U = 1,2.



FRP structural frame assembled with insulated wall and roof panels, forming the main modular shell of the house.



EC3 wall panel – typical layered build-up showing the facade layer and insulated core.



Panel-to-panel connection detail showing insulated panels joined via an FRP double-beam profile and mechanical screw fixing.

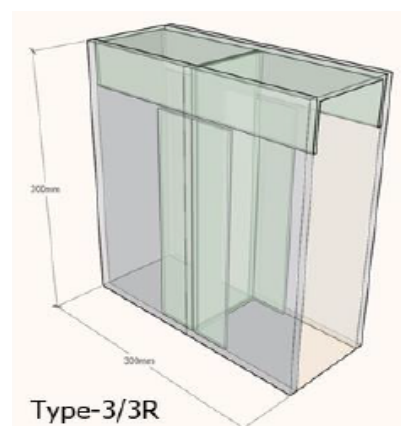
Thermal insulation for Wall / Roof / Floor

An energy efficient solution will create a cozy warm feeling in winter and pleasantly cool in summer.

- The unique design solution provides thermal properties

U= 0.149 m²K / W

- MgO / PUR + FRP / MgO = 170 mm (wall structure)
- Fire resistant A1 class
- In accordance with EN regulations.



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Fiberglass main properties:

- Resistance to corrosive attacks, chemical resistance
- High strength, low weight
- Tight structure
- Dyed by RAL
- Low electrical conductivity
- Long term durability
- Low maintenance
- Fire safe material

EN 13706 "Reinforced plastic composites", Specification LVN UTN 0103 90 490-01-2016

Constructive Profiles:

Properties	According	Remarks
Chemical resistance	ISO 175, 4892	Class C4, C5-I, C5-M
UV-radiation resistance	EN ISO 4892-3:2006	Resistance, stable
Mechanical endurance	LVS EN ISO 527	Tension resistance border (LW) 263-488 MPa Tension resistance border (CW) 51,6 MPa Elastic modules 23,2-30,1 GPa
Fireproof and fire reaction	LVS 263-2000 EN 13501, EN 13823	Class: B s1 d0 (code: IUF) or C s2 d0 (code: IU)
Density		1,66 – 1,93
Glass amount in mass		65-75%
Electrical properties		
Electrical resistance (LW)	IEC 60234	By 1.58 kV/mm
Electrical resistance (CW)	IEC 60234	By 7.9 kV/mm
Resistance circle (indicates the size of transverse)		120 seconds
Dielectric constant 60Hz		5.2 (perpendicular)
Storage time		Unlimited

1. Technical specifications for panels

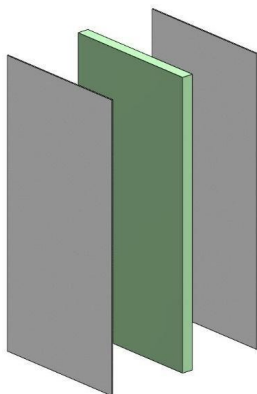
1.1 Description

EC3 multilayer structural insulated panels (SIPs) are manufactured by patented technology as sandwich panels. The panels are made with an outer layer of MgO board and an insulating core of PUR (zero- rated depletion ozone and low carbon footprint effect) which is injected between the boards. Additionally, GFRP composite layers and GFRP profiles are used in specific areas to increase the functionality. According to the classification EC3 panels are available in three categories: EC3 10 (MgO boards thick of 10mm), EC3 12 (MgO boards thick of 12mm) and EC3-I (with additional GFRP composite layer and GFRP profile).

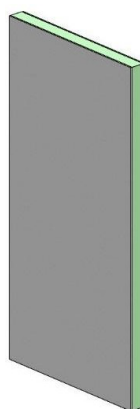
1.1.1. EC3 10, EC3 12 panel structure

The EC3 10 types and EC3 12 types are available in three different nominal thicknesses e.g., 120 mm (100mm PUR), 140 mm (120 mm PUR) and 170 mm (150 mm PUR). They are produced in lengths of up to 3m, with a width of up to 1.22m with resizing and opening possibilities on construction sites.

1. MgO boards 10mm / 12mm.
2. Rigid polyurethane foam PUR.



EC3 panel components view

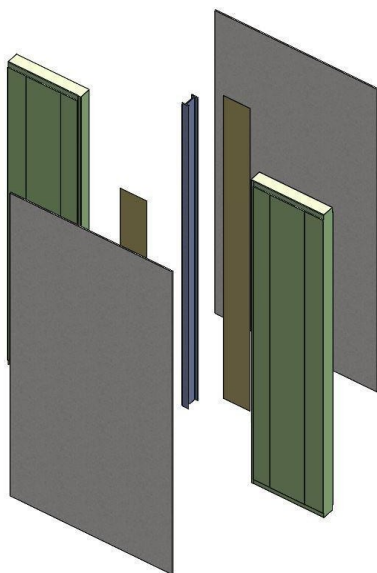


Full EC3 panel

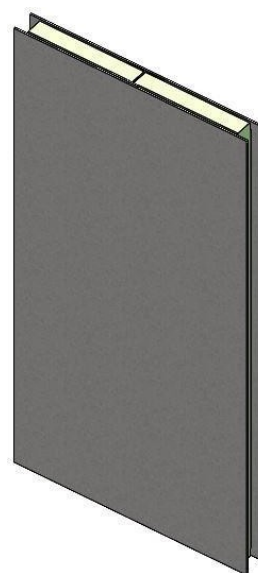
1.1.1. EC3-I panel structure

The EC3 I panels are available in a thickness range of: 121mm (101mm foam), 141mm (121mm foam), 171mm (151mm foam), and in lengths of up to 3 m, with a width of up to 1.22m. They are nominally EC3 I-120, EC3 I-140, EC3 I-170. This technology is designed to be used when higher concentrated loads are required. It provides extra strength and stiffness properties while sustaining superior thermal characteristics of the panel.

1. MgO boards
2. BIAx reinforcement with polyester resin behind profiles
3. Rigid polyurethane foam
4. Glass fiber I-profiles glued in the middle.



EC3 I panel components view



Full EC3 I panel

EC3 panels weight, depending on the configuration and thickness, 22.0 kg/ m² - 28.0 kg/ m². In addition to the panels whatever the category (EC3 10, EC3 12, EC3 I), and whatever the size (EC3 120, 140, 170) a few other components are required to facilitate the assembly of the system:

- Edge profiles — U shaped GFRP profiles (size chosen by panel thickness) provided by GRH LT.
- Structural GFRP profiles — U or H shaped GFRP profiles (size chosen by panel thickness) provided by GRH LT.
- MgO splines — 100 mm (w) by 10 mm (d).

1.2 Manufacture

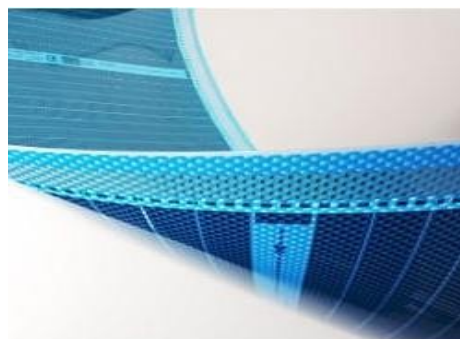
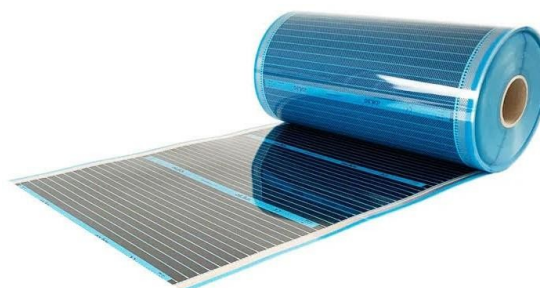
GRH LT EC3 panels consist of a high-performance fiber-free rigid PUR core auto adhesively bonded to 2 x 10/12 mm MgO boards during manufacture. The panels are cured and then stored. Each panel is marked with the production date, panel dimensions and process order number, along with Certificate number. Quality checks are made during the manufacturing process and on the finished components. They are delivered onsite as a complete panel.

2. Heating Ground

2.1 Heating film

CALEO 80-130 heating film

CALEO 80-130 heating film, which meets all European requirements and standards, ensures economical and safe operation compared to traditional electric floor heating systems and heating films. Both sides of the CALEO heating film have copper conductors attached to the nanotechnology heating element using a patented trapezoidal silver mesh. Electrical resistance is created between two conductors, which heats the special carbon heating element to the optimum temperature depending on the power. The heating film transfers its heat to the floor covering through heat transfer/heat conduction. CALEO heating films consist of five layers and 4 main components. The production of these components from carefully selected raw materials, their processing in a heat chamber, as well as high-quality lamination of the layers is a mandatory requirement to obtain a stable final product. Raw material quality and nanotechnology printing also play an important role in achieving maximum efficiency.

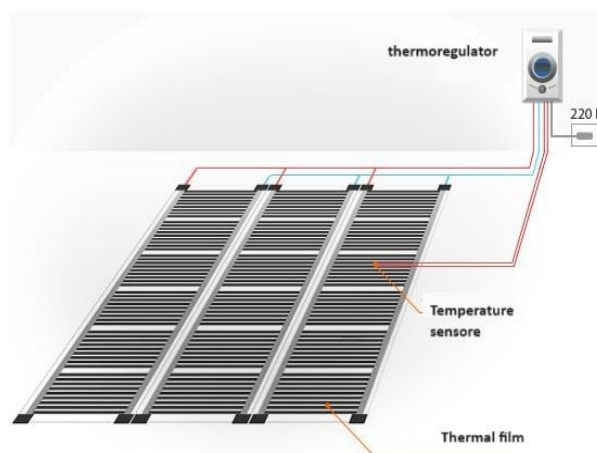


2.2. Thermoregulator

Programme thermoregulator HEAT PLUS BHT-323

The thermoregulator is designed for automatic temperature regulation in rooms equipped with electric heating film systems using a remote temperature sensor. BHT 323gb White is a digitally programmable thermostat with a large touch screen LCD display, with an air temperature sensor and a remote thermal sensor, for internal mounting.

The main function of the thermostat is to maintain the temperature in the room. The temperature can be measured both with the internal air temperature sensor and with the remote temperature sensor. The BHT thermostat can regulate the indoor temperature using an internal sensor, while controlling the film's maximum heating temperature using a remote sensor. Thus, effective temperature control in the room is achieved, without creating the risk of overheating the floor covering.



3. Ventilation System

Synchronized Dual-Unit Recuperator System

Terraqua homes use a balanced heat-recovery ventilation (HRV) system with two synchronized recuperator units - one installed in the bedroom and one in the bathroom. Working together, they continuously exchange stale indoor air with fresh outdoor air while recovering heat (or coolth) from the outgoing airflow. This keeps the indoor climate comfortable and stable, reduces humidity and condensation risk, and improves overall air quality - without wasting energy. The result is a healthier, fresher living environment with efficient ventilation all year round.



4. Outer decorations

4.1. Cladding

Charred Timber (Shou Sugi Ban)

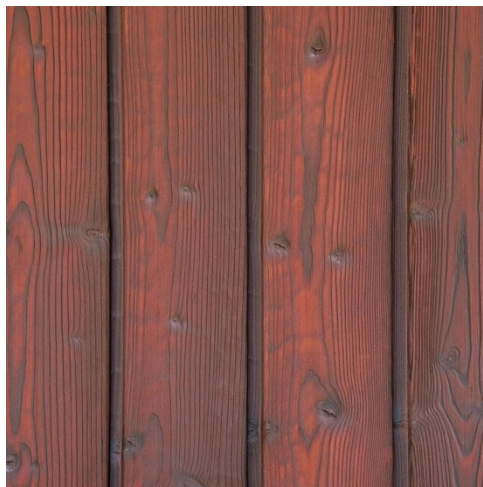
Our exterior cladding is made from charred timber, treated using the traditional Shou Sugi Ban method. The controlled burning process creates a carbonized surface that is naturally resistant to moisture, insects, and UV exposure, while providing a deep matte-black architectural finish. Charred timber offers high dimensional stability, reduced swelling and shrinkage, and long-term durability even in demanding waterfront environments. The carbon layer significantly increases resistance to rot and minimizes maintenance needs.

In addition to the dark charred finish, the facade can also be selected in a lighter-toned option depending on the desired aesthetic. Service life can exceed 50 years with proper protection.



Mahogany

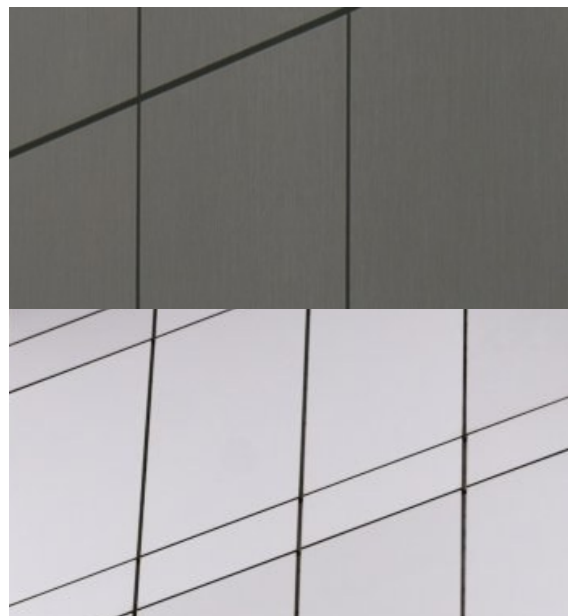
Terraqua units can be finished with mahogany exterior cladding, a premium hardwood recognized for its deep reddish-brown tone, refined grain and clean architectural appearance. Mahogany performs exceptionally well outdoors thanks to its dense structure and natural oil content, which provide high dimensional stability and significantly reduce swelling, shrinking and warping in changing weather conditions. The wood is naturally resistant to moisture, fungi and insects, making it suitable for both land and waterfront environments. With proper UV-protective finishing, mahogany maintains its color depth and structural integrity for 40–60 years, offering a durable and elegant façade that ages with a refined, noble patina.



Neobond Metal Panels

Certain architectural elements of the Terraqua exterior — including roof-edge profiles, upper facade lines and selected front-facing details — are finished with Neobond aluminum composite panels available in 2 color options - refined black-grey or grey-white tone. These panels introduce clean geometry and a contemporary aesthetic, creating a precise visual contrast to the natural timber cladding.

Neobond panels are constructed from dual aluminum layers bonded to a stable composite core, ensuring high rigidity, excellent impact resistance and long-term dimensional stability. Their coated surface is fully weatherproof and highly resistant to corrosion, UV discoloration and thermal deformation, making them suitable for both coastal and inland environments. Thanks to their light weight, structural stiffness and minimal maintenance requirements, Neobond panels maintain their appearance for decades while enhancing the architectural sharpness and durability of the Terraqua facade.



4.2. Roof

Fiberglass composite laminated roof system

Fiberglass composite laminated roof systems are used as a flat and low-slope roofing solution by creating a seamless, fully bonded waterproof layer directly on the roof structure. In Terraqua One, the system is applied as a liquid laminate that cures into a solid, monolithic surface, helping to prevent leaks and providing long-term weather protection when correctly installed.

The system is built up using a fiberglass reinforcement layer and resin, finished with a protective topcoat that seals the surface and provides the final exterior finish. Installation is carried out under controlled conditions to ensure proper curing and performance, with careful preparation of the roof surface, edge detailing, and full consolidation of the laminate to achieve a watertight result.



4.3. Windows/ outer door

Aluminum constructions in systems

Windows

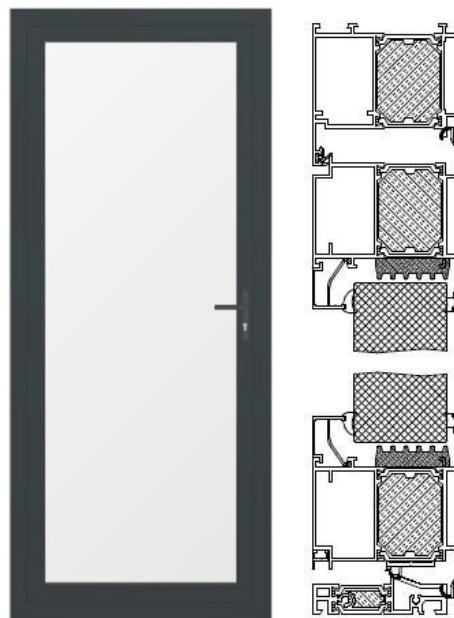
Fixed structural glazing system designed to create the look of a continuous glass facade. Large, insulated glass panels are bonded to an internal aluminum frame, while a black ceramic-frit border on the exterior hides the profiles and allows adjacent panes to visually merge into one seamless surface.

The internal aluminum structure ensures high stability for large-format glazing, providing resistance to wind loads and long-term durability in waterfront environments. All glass units are triple-glazed with Low-E coatings and warm-edge spacers, combining a minimalistic appearance with excellent energy performance. Exterior glass is tempered, inner layers are laminated for safety, and overall insulated glass achieves a U-value from 0.4 W/m²K. This system delivers maximum transparency, clean architectural lines and strong thermal efficiency while maintaining Terraqua's modern full-glass facade aesthetic.



Panel Doors

GU three-point automatic lock: the sash seals at all three points even when not locked, as all locking tabs are connected to the handle mechanism. Push-in stainless steel handles and four hidden hinges ensure clean aesthetics and smooth operation. The door is built on an insulated aluminum profile system with a reinforced sash designed for integrating a full-height glazed panel. The exterior glass panel is bonded to the sash and finished with a black ceramic-frit border, creating a modern flush appearance. The glazing unit is a triple-insulated safety glass set, with tempered outer glass and laminated inner layers. Low-E coatings and a warm-edge spacer improve thermal insulation, while the insulated profile system minimizes heat loss. A 20 mm aluminum threshold provides durability and weather protection. Cylinder with protective cap included.



5. Decoration of the interior of the house

5.1. Living room & Bedroom walls

Brush-Painted Micro joint Wall Panel (Brilliant White)

Terraqua One interior walls and ceilings are finished with brush-painted natural wood-fiber panels that create a clean, minimalist look and provide long-term durability. The panels are made from wood fibers without chemical binders, offering a healthy and environmentally responsible interior finish.

With a high density ($\sim 850 \text{ kg/m}^3$), the surface is impact-resistant and provides reliable screw holding for mounting interior fittings when needed. The panels are factory finished with multiple paint layers and a final protective acrylic topcoat, so no on-site finishing is required. The selected finish for Terraqua One is Brilliant White, delivering a bright, premium interior atmosphere.



5.2. Living room, Bathroom & Bedroom ceiling

Brush-Painted Single Panel Board (Brilliant White)

Terraqua One living room and bedroom ceilings are finished with brush-painted natural wood-fibre ceiling panels that provide a clean, minimalist surface and a consistent premium look throughout the interior. The panels are factory-finished with multiple paint layers and a final protective topcoat, delivering an even surface quality with no on-site finishing required.

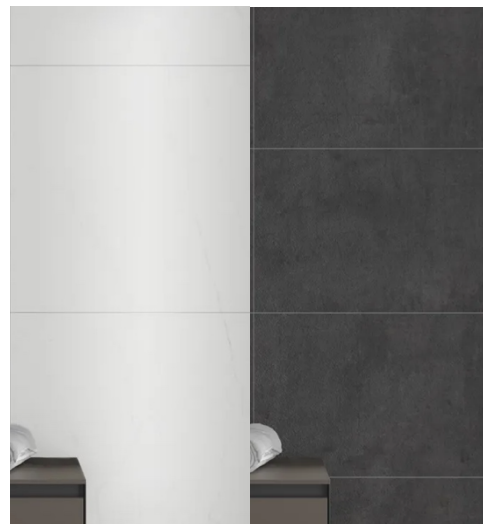
The ceiling system uses a narrow panel format in Brilliant White, creating a bright, spacious atmosphere and a refined joint pattern. Thanks to the high-density wood-fibre core, the panels are durable, stable, and practical for everyday use, while remaining easy to maintain and repaint in the future if the interior design is updated.



5.3. Bathroom walls

Waterproof HPL Bathroom Wall Panel System

Bathroom walls are finished with a waterproof wall panel system designed specifically for bathrooms and wet rooms. The panels combine a plywood core with a durable high-pressure laminate (HPL) surface on the visible side and a protective barrier layer on the reverse, creating a sealed, moisture-resistant construction. The system uses a patented Aqua-lock joint along the long edges, together with dedicated profiles and sealant, to ensure a tight and reliable connection between panels. This wall solution is suitable for high-humidity areas and is approved for use in shower zones with direct water contact, offering a clean, tile-like appearance without the need for additional waterproofing layers. For Terraqua One, the bathroom wall finish is delivered as a fixed two-tone combination, blending light and dark surfaces as shown in the visuals.



5.4. Bathroom & Sauna floor

Elemental Marble Black Vinyl

This vinyl floor features a silky matte finish with a natural stone-inspired look, created by a durable protective top layer that forms a hard-wearing, easy-to-clean surface. The covering is fully glued to the subfloor for a stable, long-lasting installation and is designed for high-traffic residential and commercial use, offering strong resistance to wear, impacts and scratches, including suitability for wheelchair load. It is ideal for underfloor heating and performs well in wet areas, as it is easy to maintain and resistant to moisture and water exposure. The material is tested for indoor air quality (GOS/VOC) by independent laboratories and is certified to strict indoor climate standards, with a formulation that excludes phthalates and heavy metals.



5.5. Sauna walls

Smoked Charred Timber

The sauna interior is finished with Smoked Charred Timber, a lightly charred and thermally treated wood paneling that preserves the natural grain structure while achieving a refined, smoked tone. This finish is available in both a darker and a lighter variation (as shown), allowing the sauna atmosphere to be matched to the desired interior style. Unlike fully carbonized shou-sugi-ban surfaces, the smoked charred treatment maintains a smooth tactile feel and clearly visible wood texture, creating a warm and calm environment suited for sauna use. The controlled charring and thermal treatment increase the material's dimensional stability and reduce moisture absorption, supporting durability under high temperatures and repeated humidity cycles. This technique enriches the wood's color, strengthens the fibers, and provides natural resistance against warping, cracking and biological decay. The result is a refined timber surface that complements modern sauna design while maintaining excellent performance and longevity.



Fireproof Sauna Wall Protection Panel (A1 class)

The sauna stove area is finished with a fireproof, A1-class protection panel designed for high-temperature environments. This non-combustible board is used behind the heater to increase fire safety and protect the wall structure from radiant heat. The panel is durable and suitable for sauna conditions, remaining stable through repeated humidity and temperature cycles. It can absorb and release moisture, making it well suited for use around sauna heaters and other heating appliances where elevated fire safety requirements apply. The protection panel is available in a refined grey finish for a clean, architectural look in the sauna interior.



5.6. Bedroom and Living room floor

Vinyl flooring

The living room and bedroom floors are finished with a high-performance luxury vinyl surface in a natural oak look. A durable protective wear layer with an easy-clean surface treatment provides excellent resistance to scratches, impacts and everyday wear, making it well suited for high-traffic residential use. The floor is moisture-tolerant, comfortable underfoot, and compatible with underfloor heating. The material is designed with indoor air quality in mind, with low emissions (low VOC) for a clean and healthy interior environment.



5.7. Sauna Heater

Electric or Traditional Sauna Stove

Terraqua One sauna can be configured with either an electric sauna heater or a traditional wood-burning sauna stove, depending on the customer's preference and installation conditions. The electric option provides fast, convenient operation with consistent heat and simple control, making it ideal for everyday use. The wood-burning option delivers a classic sauna experience with natural radiant heat and the atmosphere of a traditional fire-based stove. The final heater selection is confirmed during configuration to match the chosen setup, local requirements, and the intended use of the sauna.



6. Built-In Interior Package

6.1. Kitchen

Complete Kitchen Unit

The Terraqua kitchen is designed as a clean, integrated wall unit with a minimalist, handleless look - like the reference image. The layout combines upper and lower cabinetry to maximize storage while keeping the space visually light and uncluttered. The base package includes a complete set of built-in cabinets (as shown), a durable worktop, an integrated sink with tap, a refrigerator, and an induction cooktop. The final cabinet finish, exact configuration, and appliance specification can be adapted during the order process to match the chosen interior style and availability, while keeping the same overall design concept and functionality.



6.2. Wardrobe

Built-in Wardrobes (Bedroom)

Bedroom includes integrated built-in wardrobes positioned on both sides of the bed, creating a clean, symmetrical look and maximizing storage without taking up extra floor space. The wardrobes are designed with full-height doors and a minimalist finish to blend seamlessly into the interior. Inside, the layout can be configured with a practical mix of shelves, hanging space, and closed compartments depending on the final specification, while keeping the same built-in concept and visual style shown in the reference.



7. Foundation and Support Systems

7.1. Floating Foundation

Concrete Pontoon System & Terrace

For water-based installations, we offer a reinforced monolithic concrete pontoon system built for long-term buoyancy and exceptional stability. The floating foundation consists of two connected pontoons (15 m × 3 m each), manufactured by our partner PONTON.LV, creating a stable base for placing the Terraqua home directly on the water. The pontoon is topped with our structural FRP (fiberglass) frame for high strength, corrosion resistance and minimal maintenance in waterfront environments.

Above the FRP frame, a durable wooden terrace deck* can be installed to create an elegant outdoor space and distribute loads evenly. Boards are available in classic or black finishes, in natural wood or composite. Alternatively, the home can be installed without a terrace, leaving the pontoon surface as the finished platform. This system — concrete pontoon, FRP frame and optional decking — provides a reliable, stable and weather-resistant foundation on the water.



* The terrace deck is also available for ground-based installation; the build-up is the same, excluding the pontoon.

7.2. Ground Installation

Recommended Screw-Pile Foundations & Terrace

On land, Terraqua can be installed on a screw-pile foundation, which provides excellent stability, level adjustment and long-term resistance to soil movement. Screw piles are suitable for most ground types and allow the module to be securely anchored without the need for heavy concrete works. Screw piles are provided by our partner GSPillar and are selected according to the client's geodetic survey and site conditions. Terraqua can supply screw piles as part of the project, or they can be supplied and installed by certified local foundation specialists according to the required load-bearing specifications, ensuring a stable and reliable base for the Terraqua module.

Above the foundation, the installation follows the same structural principle as our water-based solution: a structural FRP frame forms a strong, corrosion-resistant support platform, and a terrace deck is installed above to create a functional outdoor surface while distributing loads evenly across the base. Terrace boards are available in natural wood or composite decking. This system delivers a stable, weather-resistant platform for the Terraqua home on land, with the key difference being that the pontoon layer is replaced by the ground foundation system.



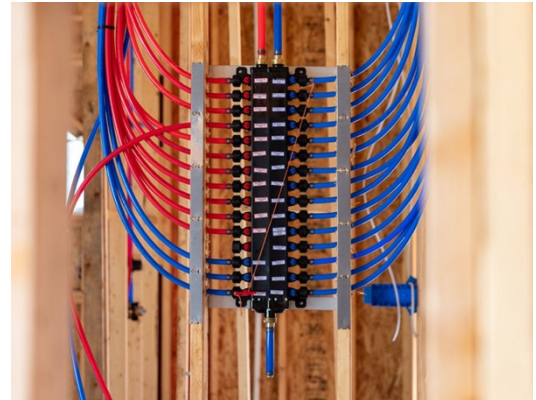
8. Optional: Banglou Service Pedestal

As an optional add-on for waterfront installations, Terraqua can be complemented with a Banglou marina service pedestal. The pedestal provides convenient shore connections for yachts and boats, including power, fresh water and integrated lighting, creating a clean and organized dockside setup. It can also be used for personal needs around the terrace and berth area—supplying electricity, water and light exactly where it's needed for everyday comfort and practical use on the water.



9. Utilities & Connections

Terraqua module is prepared with dedicated connection points for electricity, fresh water and wastewater, making the unit ready to connect on-site. Depending on the installation location and local requirements, a septic tank / sewage solution can be integrated, with plumbing routed to the designated outlet points for fast and safe hookup. Final connection and commissioning are completed by certified local specialists to match site conditions and regulations.



10. Transportation and assembly of house.

The house is delivered as a prefabricated module and installed on-site, with all interior systems prepared for final connection.



11. Additional Information

Terraqua modules are manufactured in controlled factory conditions to ensure precision, consistent quality and long-term durability. The structural FRP frame and panel construction is backed by a 5-year warranty, guaranteeing stability and resistance to environmental impacts. All integrated systems and appliances come from certified European manufacturers and include their respective factory warranties. Specifications shown in this catalogue may be refined as part of ongoing product development, with final documentation confirmed prior to production.

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