Etopia Building System

Structurally Insulated Panel Specification Manual

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Design, manufacture, deliver, & install.

NHBC

BOPAS Buildoffsite Property Assurance Scheme

ISO

etopia | 4WALL

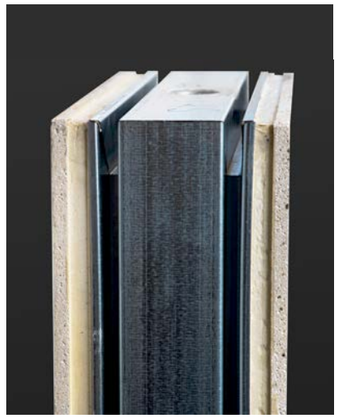
THE AVENUE, CAMBRIDGESHIRE.

Contents

LPF (LARGE PANEL FORMAT) BEING PLACED USING A MOBILE CRANE

The Etopia Building System

PROFILE VIEW OF THE SIP



Etopia manufactures a structural insulated panel (SIP) wall system. The panels are manufactured with an accuracy of +/- 1mm in jigs and controlled within the ISO manufacturing process. The panels are fabricated to UK brick dimensions allowing any house design to be supplied and erected with our versatile panels.

The panels make up the external and party walls of a home with the superstructure completed with steel web joists made into floor cassettes for intermediate floors, internal walls (both load bearing and non load bearing) and roof trusses.

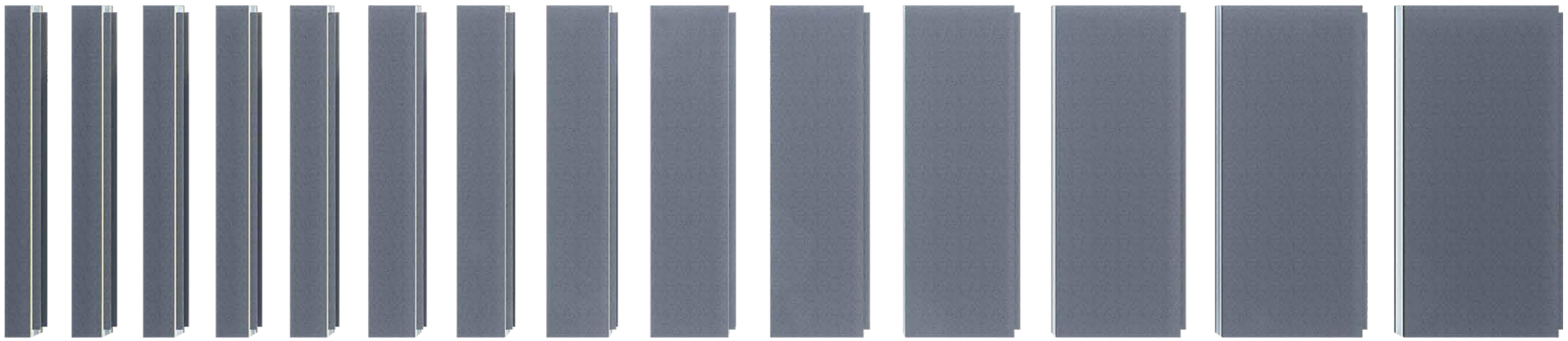
The panels range from one brick, 215mm wide, to the largest panel of five bricks, 1125mm wide. This is to allow ease of transportation, storage, and safe handling on site. The panels can be assembled into wall sections, which we call large panel format (LPF). Etopia can deliver homes using either LPF or as single panels depending on customer requirements or site specific factors.

All the wall panels are 2400mm tall and 185mm thick. There is no internal or external elevation, and they are faced with 12mm Magnesium Oxide board (MgO) and a metal profiled ‘perimeter’ to enable the panel- to-panel, thermally broken connections. The panels are fixed together with 2 splines, foam adhesive and a bead of silicone. The panels are filled with 160mm blown PU foam insulation that bonds the entire panel together, giving it its high structural strength, high level of airtightness 0.07l/s/m at 50Pa and low U-Value of 0.14w/sqm.

Window and door openings have specific 2100mm tall lintel support and base panels. The lintel and ‘base’ panels accommodate standard British brick dimension openings, from 460mm to 1810mm. Special Wide Span Lintels are used to allow for wider openings. The Wide Span Lintels are made up of a 160mm wide glulam beam, faced with 12mm MgO board. All window and door heads are fixed at 2100mm.

Versatility of the Etopia System

MULTIPLE PANELS ARE AFFIXED TOGETHER OFF-SITE TO CREATE LARGE FORMAT PANELS



The illustration above shows a selection of panels from the versatile system. The panels, including the corner panel, can be made to match any design.

Panels can be fitted both vertically and horizontally allowing for different wall heights above and below 2400mm.

The Etopia system is monolithic in its nature and does not require any breather membranes or vapour control layers.

External finishes can be applied directly to the panel without the need for a ventilated cavity (see page 11 for examples). Traditional cladding systems can still be used to comply with the warranty providers standard details, such as brick cladding with a ventilated cavity.

The MgO system is certified under the BDA Agrement BAW-20-079-S-A-UK.

Panel Applications

The system can be used to create buildings up to 11m high in compliance with the current Building Regulations. It can be used for residential purposes including detached, semi-detached, terraced homes and apartments. It can also be used for commercial buildings including education, healthcare and offices.

THE SOLUS APARTMENTS, CORBY

Environmental Credentials

The Etopia system can be used to build incredibly energy efficient buildings, from homes to hospitals. The panels have a standard U-Value of 0.14 which exceeds the Future Homes Standards and can be improved with an additional layer of 90mm PU insulation to achieve Passivehaus Wall Standards of 0.09.

The Etopia system is the only walling system to pass the CWCT41 water pressure test around panel connections and joinery openings (in compliance with our standard details).

The panels have a standard air leakage rate of 0.07 l/s/m at 50Pa at the bare wall panel and intermediate joist level zone.

Unlike other SIP systems, there is no requirement to apply breather membranes and vapour control layers to control moisture and air movement. These can be damaged on site and degrade over time resulting in major structural defects within the building.

Using the Etopia system dramatically reduces site waste which also reduces health and safety risks on site.

Etopia panels are finished in 12mm MgO which reduces embodied carbon and has class A1 flame spread resistance.

An innovative intermediate floor skirt design maintains insulation and airtightness, a natural weakness in most other construction systems at intermediate floor zones. The Etopia system also has a unique thermal break in the panel joint design, virtually eliminating cold bridging.

FIRE TEST BS EN 1365-1, BEYOND 1HR 29M

CLEAN SITE IMMEDIATELY AFTER CONSTRUCTION

Speed and Efficiency

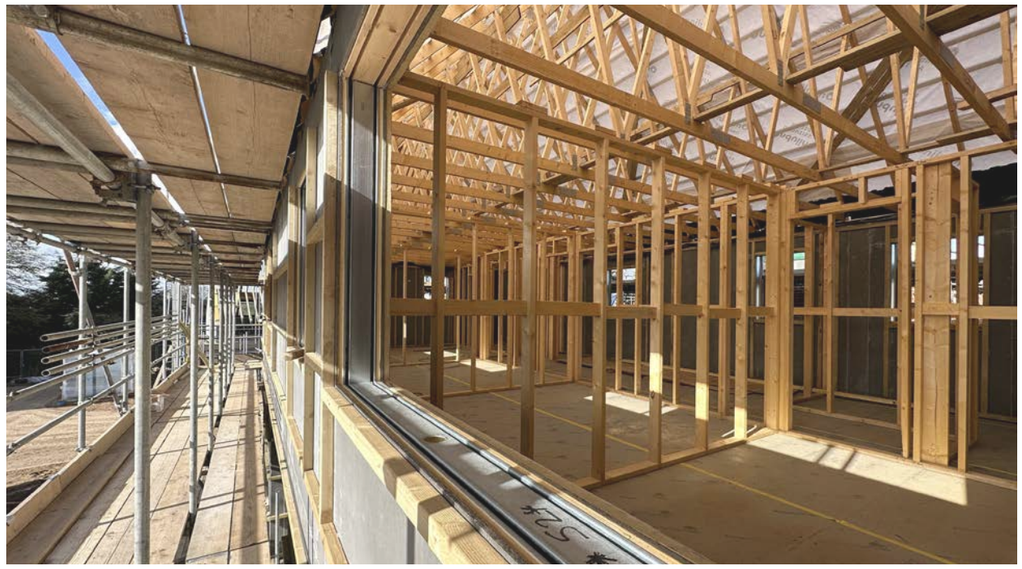
The Etopia panellised system allows for a rapid construction process, reducing construction time. For example a four bedroom house is watertight within four days.

Follow on trades can start as soon as the superstructure is complete, there is no need to apply additional breather membranes to the walls or allow for a drying out period as no water is used in the construction.

SIMPLE INSTALLATION OF PANELS WITH HELP FROM A MOBILE CRANE

COMPONENTS ARRIVE ON STILLAGES

Structural Strength



Unlike timber frame and traditional timber SIPs, point loads are distributed across the structure reducing the need for columns and localised foundation thickening.

The UDL Loading is 122kN/m, Point Load (Eccentric) centre of panel 36kN, Wind loading 9kN/m2. All figures are a Factor of Safety of 3. (Failure figures are 3 times the figures stated).

No settlement details are required around openings unlike timber frame and traditional timber SIPS systems. The structure is ridged and stable.

The panels are lighter than many other construction materials and may reduce the foundation depths and loading requirements.

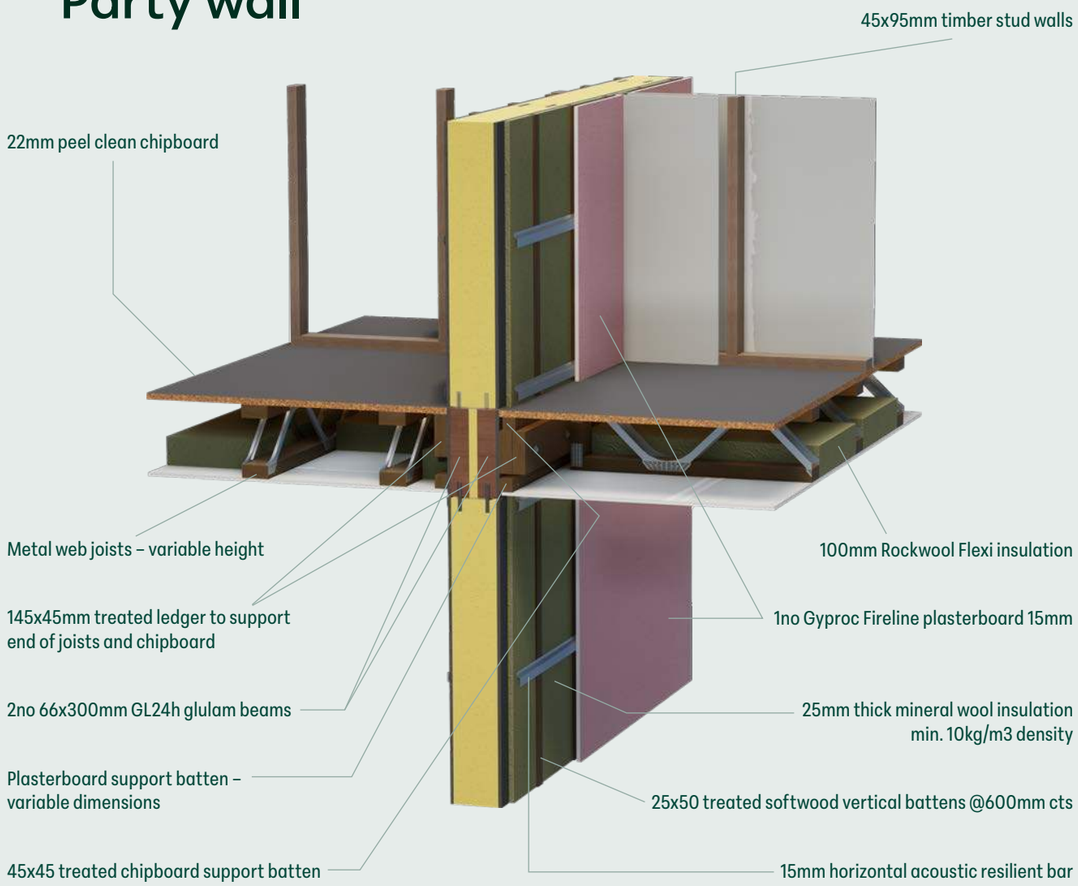
DEVELOPMENTS ARE CLEAN AND TIDY DURING CONSTRUCTION

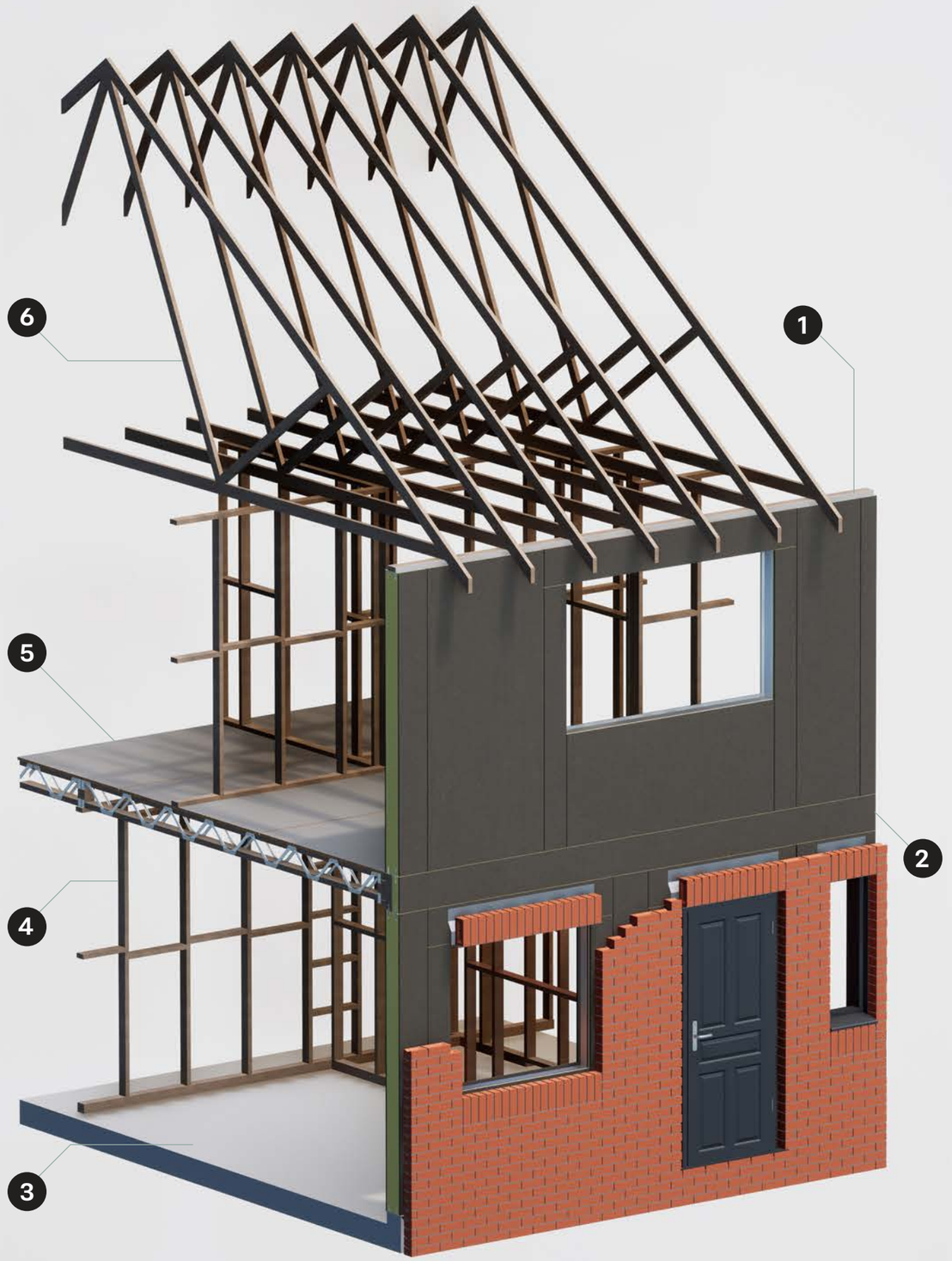
System Components

Refer to the illustration on page 10.

1. Etopia Panels
2. Glulam ring beams
3. Foundations
4. Internal timber stud wall
5. Intermediate floor cassettes
6. Trusses

Party wall





External Finishes and U-Values

The following illustrations are examples of external cladding for walls constructed using the Etopia building system:

1. Outer leaf of Brickwork / Stone, ensuring a minimum 50 mm cavity is maintained between the panel and the brickwork / stone.

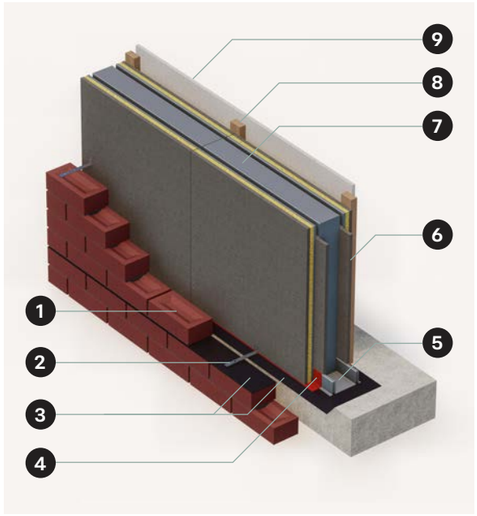
2. Proprietary Brick Slip system supported by min. 25 mm deep by 50 mm wide vertical treated timber counter battens (NHBC Accepts compliant).

3. Timber Cladding / Fibre MgO Board Cladding on min. 25 mm deep by 50 mm wide vertical treated timber counter battens.

4. Proprietary Render Coated system backed on to circa 30mm of external wall insulation.

Other wall cladding options are possible, for queries regarding the suitability of your preference, please contact the Etopia Design Team.

1. Brickwork

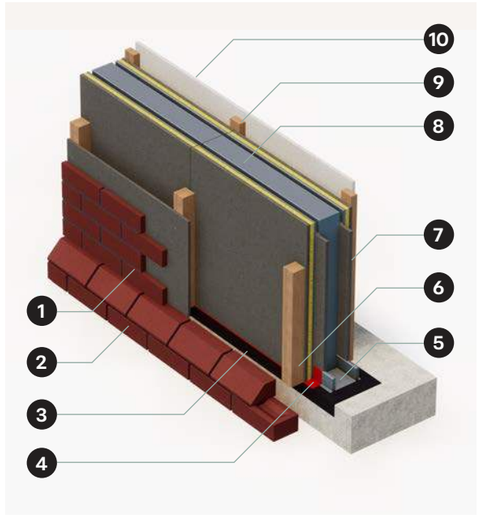


Thickness
375mm

U-Value
0.13W/m²K

1. Brickwork
2. Brick-ties
3. DPC
4. Wraptite membrane
5. Soleplate
6. Spline connection
7. Etopia Panel
8. Service batten
9. Plasterboard

2. Proprietary Brick Slip (NHBC compliant)

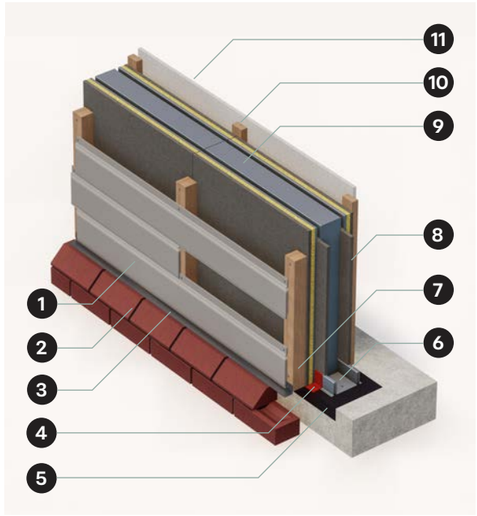


Thickness
267.5mm
Minimum

U-Value
0.13W/m²K

1. Proprietary Brick Slip
2. Brickwork below DPC
3. DPC
4. Wraptite membrane
5. Soleplate
6. Vertical counter battens
7. Spline connection
8. Etopia Panel
9. Service batten
10. Plasterboard

3. Timber Cladding / Fibre MgO Board Cladding

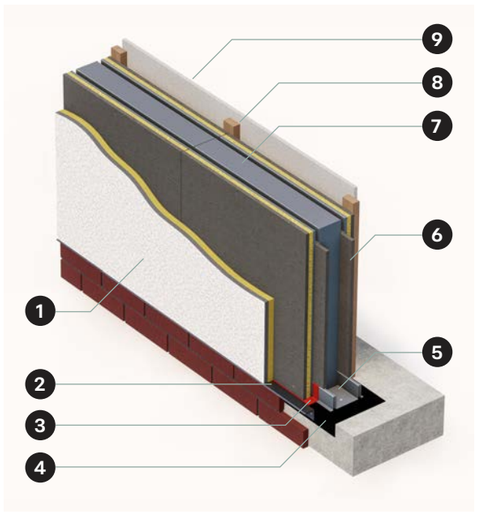


Thickness
267.5mm
Minimum

U-Value
0.13W/m²K

1. Timber / Fibre MgO Board
2. Brickwork below DPC
3. Drip flashing
4. Wraptite membrane
5. DPC
6. Soleplate
7. Vertical counter battens
8. Spline connection
9. Etopia Panel
10. Service batten
11. Plasterboard

4. Proprietary Render Coated



Thickness
262.5mm

U-Value
0.12W/m²K

1. Proprietary Render Coated
2. Drip flashing
3. Wraptite membrane
4. DPC
5. Soleplate
6. Spline connection
7. Etopia Panel
8. Service batten
9. Plasterboard

Discuss your needs with our team.

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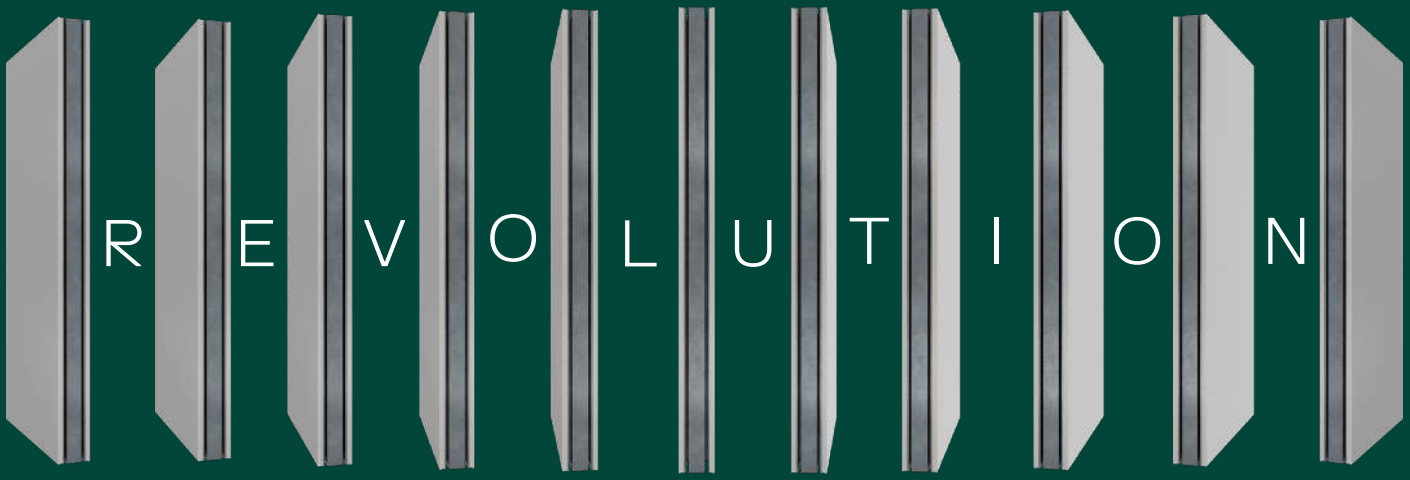
THE FUTURE-PROOF



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Deliver. Install.

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