BRITISH OFFSITE
Manufacture · Construction

UNiSYSTEM

TECHNICAL SPECIFICATIONS

CONTENTS

BRITISH OFFSITE
Manufacture · Construction

BRITISH OFFSITE IS THE CREATOR OF UNISYSTEM, THE MOST TECHNICALLY ADVANCED, LIGHT GAUGE STEEL PANEL SYSTEM IN THE MARKETPLACE.

Adaptable to any design vision, UNisystem can be used for housebuilding, mid-rise and high-rise developments, and for the construction of commercial and public buildings.

UNisystem is manufactured at Horizon, our flagship factory in the heart of Essex, which was founded with investment from the Weston Group and designed with Randek UK.

By employing Randek's state-of-the-art robotics we have quadrupled our production capacity to 110,000 lm – the equivalent of 4,000 homes per year.

UNisystem is the future of modern building, delivered today.

FAST. FLEXIBLE. RELIABLE. COMPETITIVE.

UNISYSTEM

UNISYSTEM IS A HIGH PERFORMANCE, 2D PANELISED SYSTEM THAT DELIVERS FUNCTIONING AND OCCUPIABLE SPACES FASTER. TECHNICALLY ADVANCED AND MEETING ALL NECESSARY BUILDING STANDARDS AND REGULATIONS, IT IS MANUFACTURED WITH EXACTING PRECISION TO FULLY ALIGN WITH YOUR DESIGN SPECIFICATIONS.

British Offsite will bring your vision to life, combining UNisystem^{SFS} infill products with your reinforced concrete or steel frame structure, or utilising UNisystem^{LB} (load bearing) to create self-supporting superstructures.

With light gauge steel at its core, UNisystem delivers the strength and durability needed for schools, student accommodation, hospitals, commercial buildings, residential developments and more. At the same time it delivers major cost efficiencies, generated by our streamlined and automated manufacturing processes.

Quality checked at every turn, UNisystem is manufactured to exacting standard subsuming the work of up to five trades into one panel. With multiple processes completed offsite, risks and delays typical of today's construction projects are minimised.

UNisystem adds value to every project.

HIGH-PERFORMANCE SYSTEM RIGOROUSLY TESTED

ALL COMPONENTS OF UNISYSTEM^{SFS} AND UNISYSTEM^{LB} ARE SUBJECT TO RIGOROUS TESTING AND QUALITY CONTROL, TO MAKE SURE EXCELLENT FIRE PROTECTION, THERMAL AND ACOUSTICS PERFORMANCE ARE MAINTAINED, AND EVERY PANEL ARRIVES ON SITE READY TO INSTALL WITHOUT ISSUE.

COMPLIANT WITH ALL STANDARDS AND REGULATORY REQUIREMENTS

UNISYSTEM^{SFS} AND UNISYSTEM^{LB} HAVE BEEN TESTED AND APPROVED IN ACCORDANCE WITH THE FOLLOWING STANDARDS.

Structure
BS EN 1991-1 and its sub-parts that cover:

- Densities, self-weight and imposed loads.
- Actions due to fire, snow and thermal actions.
- Loads during execution and accidental actions.
- UNisystem achieved SCI/NHBC Stage 1 System Certification covering structural strength, stability and durability.

Fire
- EN1365-1:2015 for non-loadbearing panels.
- EN1365-1:2012 for loadbearing panels.

Acoustic
- BS EN ISO 140-4:1998 for airborne insulation on separating walls.

Vapour
- U-Value generated in accordance with the Glaser Method, as required by the National House Building Council.
- U-Values generated with and without rainscreen slabs at both 50mm and 100mm widths.

Airtightness and acoustics are tested post-installation, in line with British Standards, ensuring every home, health, education and commercial space built with UNisystem meets or exceeds the required levels.

Fire, thermal and weathersealing tests have been carried out on the full UNisystem product range and full compliance with British Standards and UK building regulations has been achieved.

NEW BUILDING REGULATIONS 2023

From 2023, new UK building regulations place further requirements on designers and developers to reduce carbon emissions during the construction and in the operation of new buildings.

With a “fabric first” approach to reducing energy consumption, British Offsite has built energy efficiency, as well as safety features, into all components of UNisystem, so designers and developers can readily achieve compliance and fulfil their build plan.

British Offsite is strengthening carbon reduction and energy efficiency measures at every stage of our value chain – from product development through to the operation of buildings – to achieve our goal of being carbon net zero.

Our customers and end-customers can be confident when UNisystem^{SFS} or UNisystem^{LB} are used, they are purchasing a safe, energy efficient, durable and high performance building that is cost effective to run.

FAST MANUFACTURING AND CONSTRUCTION

120 DAYS

BRITISH OFFSITE CAN CONVERT A TRADITIONAL CONSTRUCTION PROJECT TO A HYBRID MANUFACTURING AND CONSTRUCTION PROJECT AND DELIVER TO SITE IN AS LITTLE AS 120 DAYS.

5

THE WORK OF UP TO FIVE TRADES ARE CONSOLIDATED IN THE MANUFACTURE OF ONE UNISYSTEM PANEL, SAVING TIME AND RESOURCES IN THE CONSTRUCTION PROCESS AS WELL AS SPACE ON SITE.

15 MINUTES

ONE UNIPANEL COMPLETE WITH WINDOWS, DOORS, INSULATION AND FIRE STOPPING CAN BE PRODUCED BY THE HORIZON FACTORY EVERY 15 MINUTES.

60 MINUTES

FOUR UNIPANELS FOR A TYPICAL APARTMENT CAN BE INSTALLED ON SITE IN ONE HOUR.

30%

CHOOSING TO MANUFACTURE YOUR PANELS WITH BRITISH OFFSITE CAN IMPROVE FIRST FORK IN THE GROUND TO FIRST KEYS HANDOVER TIME BY UP TO 30%.

Edinburgh Way, Harlow
UNisystem[SFS]

Abbey Quay, Barking
UNisystem[SFS]

UNiSYSTEM[SFS]
NON-LOADBEARING

UNiPANEL			✓	✓
UNiWALL			✓	✓

UNISYSTEM SFS

UNISYSTEM[SFS] IS A NON-LOADBEARING STEEL FRAMING SYSTEM COMPRISING UNIPANEL[SFS] (EXTERNAL INFILL WALL PANELS) AND UNIWALL[SFS] (INTERNAL COMPARTMENTALISATION WALLS), WORKING IN CONJUNCTION WITH A LOADBEARING REINFORCED CONCRETE OR STEEL STRUCTURE THAT DELIVERS VERTICAL LOAD TRANSMISSION AND FLOORING.

Both UNipanel[SFS] and UNiwall[SFS] are supplied with internal and external weather sheathing boards and are filled with insulation providing excellent thermal, acoustic and fire performance as well as project specific glazing.

Each panel is manufactured using standard construction materials to a standardised SFS wall buildup and can be adapted to specific structural, thermal, acoustic and fire requirements, calculated on a site-specific basis. External wall insulation, external cavity barriers, external DPC and internal battens can also all be altered to meet specific needs.

Panels can be manufactured to a maximum width of 8.4 metres and a maximum height of 3.2 metres. Project requirements outside of these parameters can be assessed on a project specific basis.

As the loadbearing element of the building is taken by the steel or reinforced concrete frame, UNisystem[SFS] and can be used for any height of building, providing the multiple benefits of offsite construction including lower overall on-site build time.

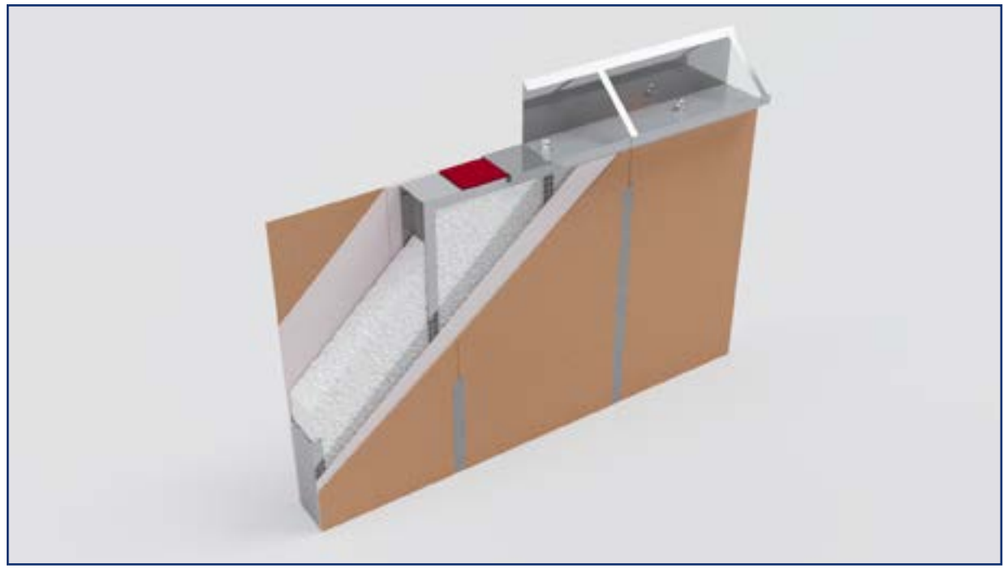
When a reinforced concrete frame is used, edge shuttering formwork for the floor above is incorporated into the head of UNipanel[SFS], eliminating any issues with tolerance to the underside of the concrete floor or beam.

Deflection is accommodated via deflection joints built into the head of the panels, which are fixed to avoid movement during construction and then released after the concrete has reached full strength to allow for movement.

UNIPANEL	8.4m MAXIMUM WIDTH	3.2m MAXIMUM HEIGHT

UNIPANEL^SFS IS A NON-LOADBEARING, WEATHERPROOF AND AIRTIGHT EXTERNAL PANEL, ADAPTABLE FOR EVERY ARCHITECTURAL NEED, ACROSS MID AND HIGH-RISE PROJECTS.

UNIPANEL^SFS

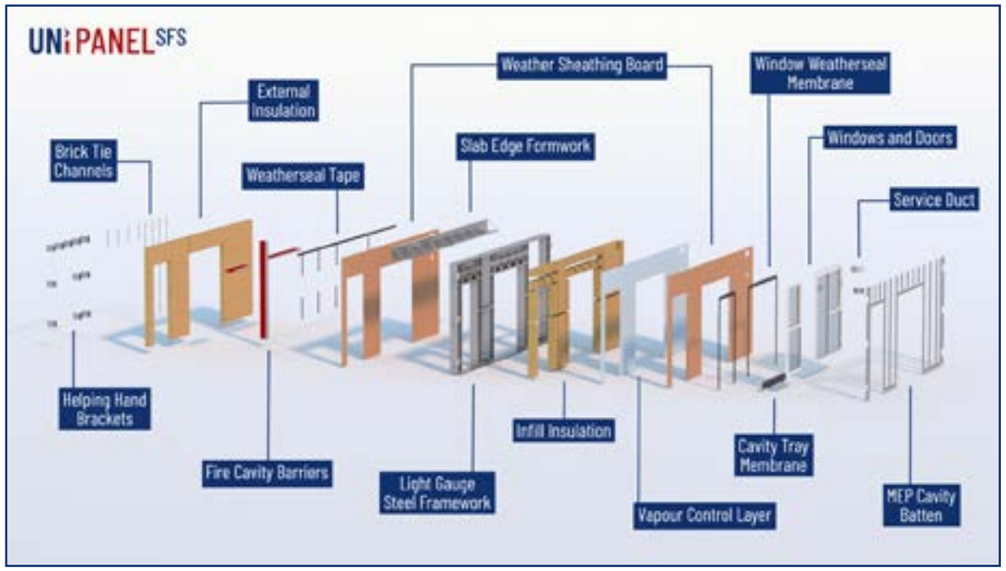


PRODUCT	Fire classification EI*	Airborne Sound Insulation (dB)*	U-Value (W/m2K)*	U-Value (W/m2K) With 50mm Rainscreen Slab	U-Value (W/m2K) With 100mm Rainscreen Slab
UNipanel	60	/	0.29	0.15	0.12

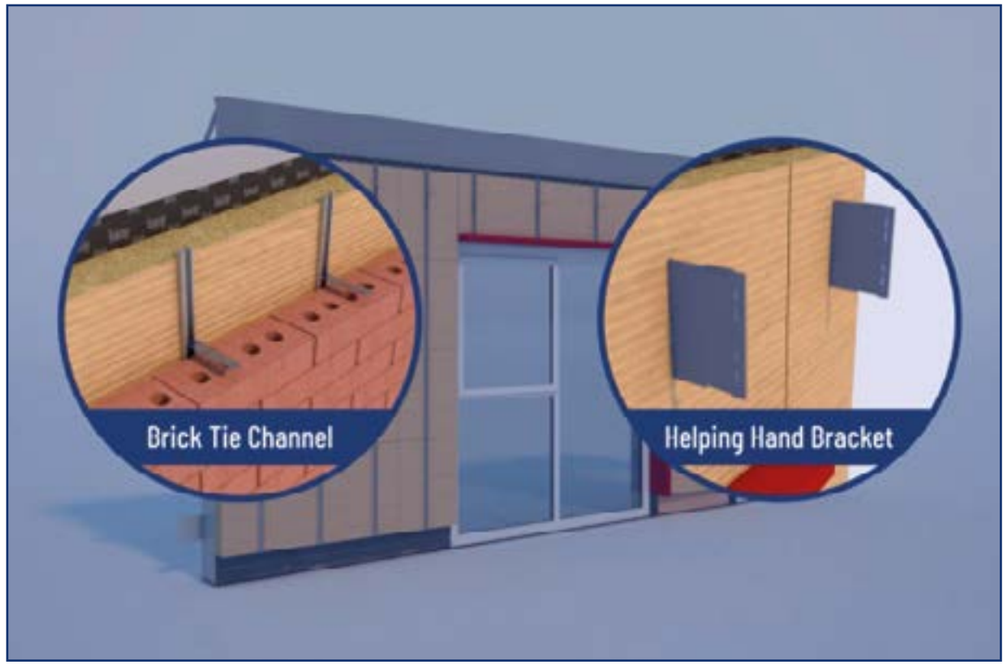
The performance figures provided refer to UNipanel non-loadbearing, excluding any finishes. U-values shown are for brickwork construction.

UNIPANEL^SFS WITH PRE-INSTALLED WINDOWS AND DOORS

UNIPANEL^SFS SYSTEM BREAKOUT



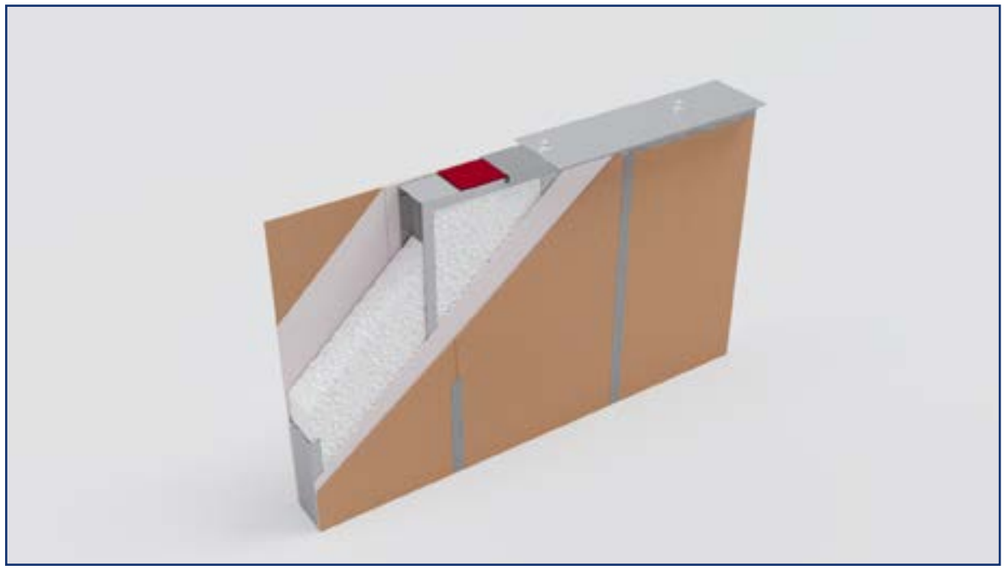
EXTERNAL FINISHES



UNIPANEL^{SFS} CAN BE ADAPTED TO ANY TRADITIONAL SFS DESIGN, WITH FIXINGS APPLIED FOR THE EXTERNAL FINISH OF YOUR CHOICE; BRICK TIES FOR BRICKWORK, HELPING HAND BRACKETS FOR CLADDING OR A BRICK-SLIP SYSTEM, OR BOTH TO SUPPORT A HYBRID AESTETHIC FINISH.

UNIWALL[SFS] IS A NON-LOADBEARING INTERNAL COMPARTMENTALISATION WALL SYSTEM THAT EXCEEDS BUILDING FIRE AND ACOUSTIC PERFORMANCE REQUIREMENTS.

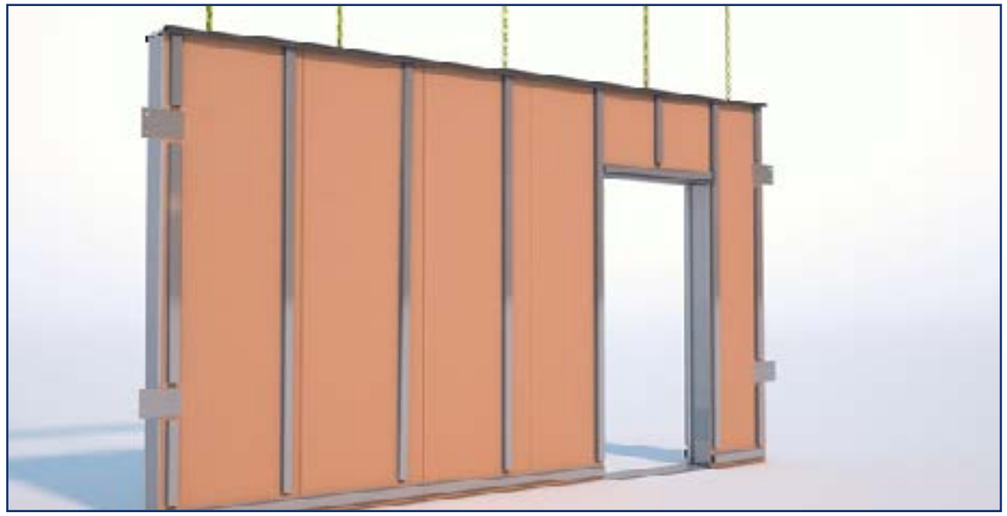
UNIWALL[SFS]



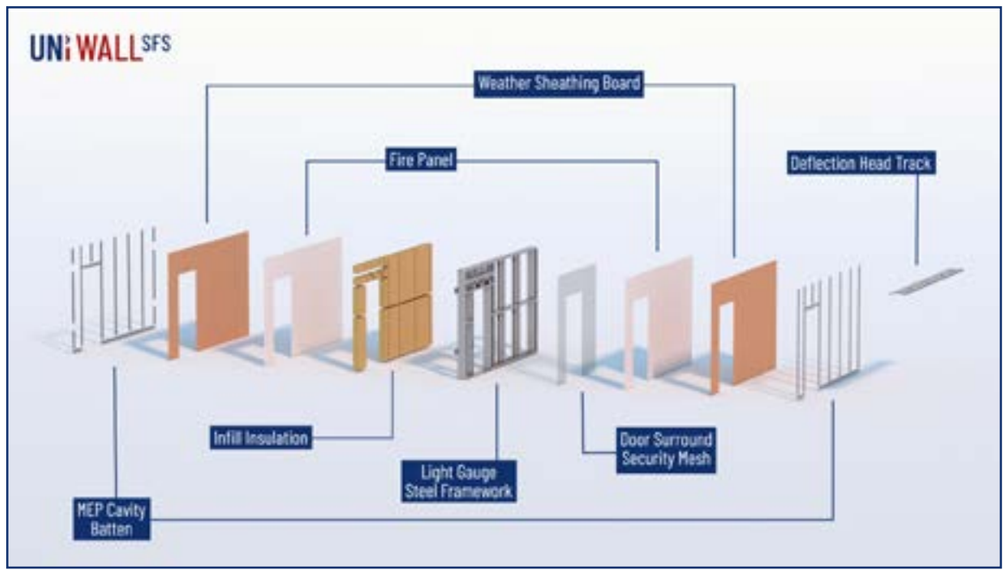
PRODUCT	Fire classification EI*	Airborne Sound Insulation (dB)*	U-Value (W/m2K)*	U-Value (W/m2K) With 50mm Rainscreen Slab	U-Value (W/m2K) With 100mm Rainscreen Slab
UNiwall	120	48	/	/	/

The performance figures provided refer to UNiwall[SFS] non-loadbearing, excluding any finishes.

UNIWALL[SFS] WITH PRE-CUT DOOR APERTURE



UNIWALL[SFS] SYSTEM BREAKOUT



UNISYSTEM SFS

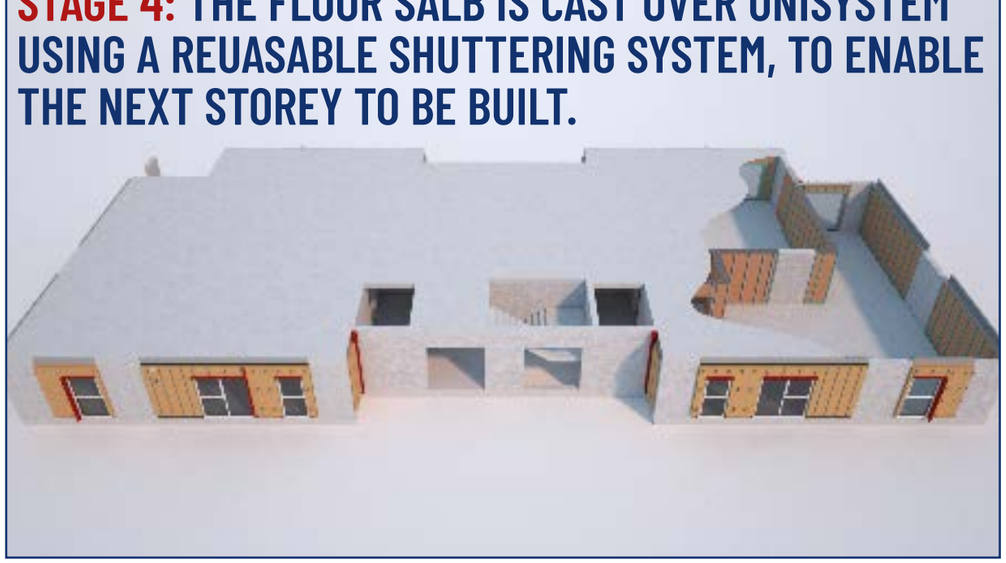
STANDARD SEQUENCING

STAGE 1: UNIPANEL^{SFS} IS LIFTED INTO THE STEEL FRAME OR REINFORCED CONCRETE STRUCTURE.

STAGE 2: UNIWALL^{SFS} ARE PLACED TO CREATE INTERNAL COMPARTMENTS.

STAGE 3: PERIMETER IS COMPLETED TO FLOOR PLAN SPECIFICATION.

STAGE 4: THE FLOOR SALB IS CAST OVER UNISYSTEM USING A REUASABLE SHUTTERING SYSTEM, TO ENABLE THE NEXT STOREY TO BE BUILT.



UNISYSTEM SFS

COMPARISON TO TRADITIONAL BUILD

British Offsite Process

Fit-Out Progress

Fit-Out Begins
(3 floors below the open floor)

ONCE THE PODIUM HAS BEEN COMPLETED, UNISYSTEM^{SFS} IS INSTALLED AS THE CONSTRUCTION OF THE MAIN STRUCTURE PROGRESSES, PROVIDING A WEATHERTIGHT 'DRY BOX' ENVIRONMENT IN A SIGNIFCANTLY SHORTER TIMEFRAME THAN TRADITIONAL BUILD. ONCE THE BUILDING REACHES FOURTH FLOOR PLATE, FIRST FIX CAN BEGIN ON FIRST FLOOR AND FINAL FIX CAN BE COMPLETED RAPIDLY AFTER.

Traditional Build Process

UNISYSTEM SFS

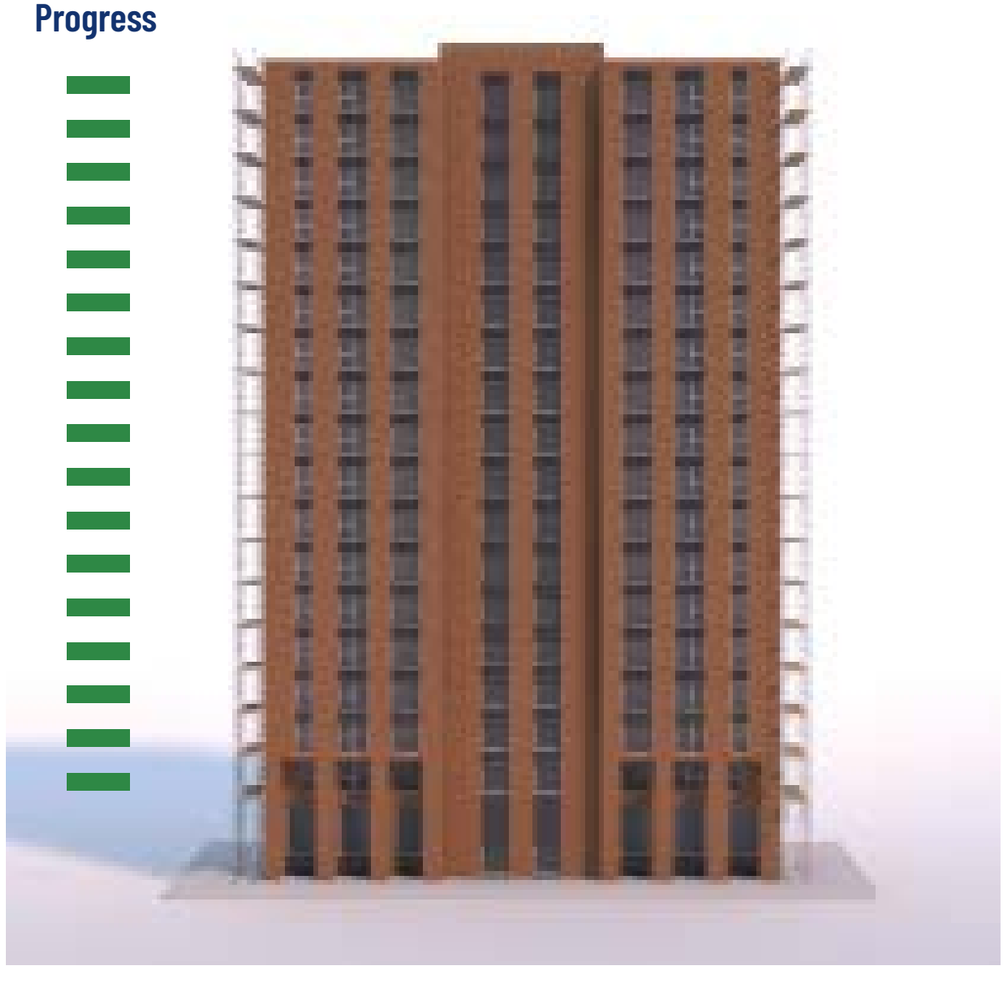
COMPARISON TO TRADITIONAL BUILD

THIS CIRCUMVENTS THE CONVENTIONAL REQUIREMENT TO TOP OUT THE BUILDING AND CREATE A COMPLETE DRY ENVELOPE BEFORE COMMENCEMENT OF FITOUT BEGINS AS WITH TRADITIONAL REINFORCED CONCRETE BUILDS. THE BRICKWORK IS ALSO REMOVED FROM THE CRITICAL PATH FOR FURTHER PROGRAMME BENEFITS.

British Offsite Process

Fit-out up to 30% faster

Fit-Out Progress

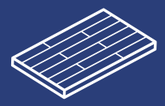


Traditional Build Process

Fit-Out Progress

Gasholders, Bury St Edmunds
UNisystem^{LB}

UNiSYSTEM^{LB}
LOADBEARING

UNiPANEL		✓	✓	
UNiWALL		✓	✓	
UNiFLOOR		✓	✓	

UNiSYSTEM^{LB}

UNISYSTEM^{LB} IS A LOADBEARING STRUCTURALLY SELF SUPPORTING SYSTEM COMPRISING UNIPANEL^{LB} (EXTERNAL WALL PANELS) AND UNIWALL^{LB} (INTERNAL COMPARTMENTALISATION WALLS) CAPABLE OF RAPID DEPLOYMENT OF LOW-RISE HOUSING AND AND MID-RISE BUILDINGS UP TO SIX STOREYS.

UNisystem^{LB} is ideal for buildings up to final finished floor level of 18 metres or less. Working in unison with a suitable floor and roof system UNisystem^{LB} can be employed to create entire weathertight envelopes that delivers vertical load transmission through its system and lateral load transmission can be provided by reinforced concrete cores or by cross-bracing within the panel structure.

UNisystemLB saves significant build programme time (potentially 50% or more), making it a compelling choice for use on mid-rise apartment blocks, healthcare, education, student accommodation projects and more.

Due to the lightweight nature of the system, padded foundations and vented voids etc. can often be omitted in favour of a ground bearing slab providing futher programme and cost efficiencies.

The panels are supplied with weather sheathing boards, fire panels on both sides and filled with insulation that provides thermal, acoustic and fire performance as well as project specific glazing.

Each panel is manufactured using standard construction materials to a standardised SFS wall build up and can be adapted to the specific structural, thermal, acoustic and fire requirements, designed on a build-by-build basis. External cavity insulation, external cavity fire barriers, weatherseal membranes and tapes and internal battens can all be altered to meet specific needs.

Panels can be manufactured to a maximum width of 8.4 metres and a maximum height of 3.2 metres. Requirements outside of these parameters or odd-shaped panels such as gable ends can be also be accommodated.

UNiPANEL^{LB}

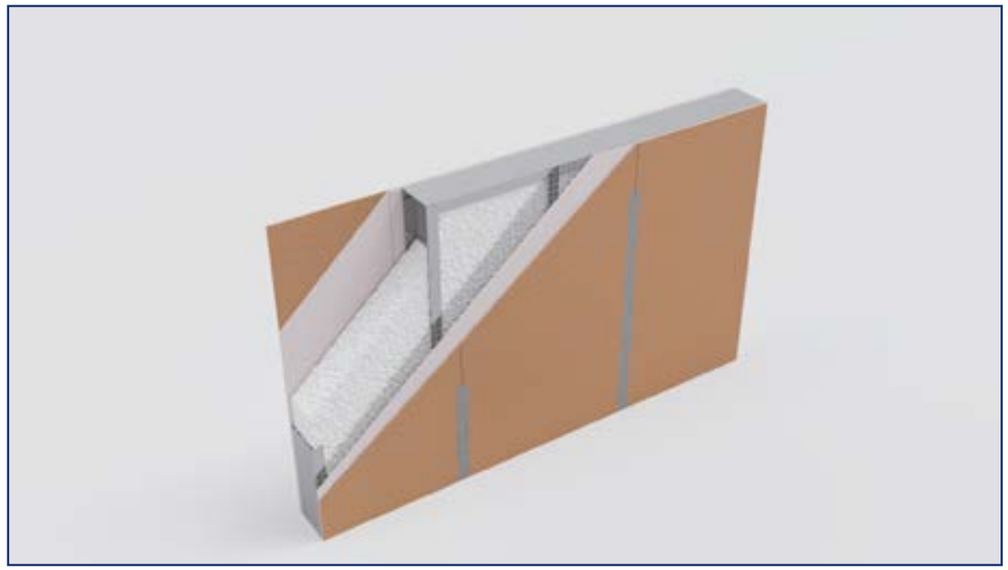
8.4m MAXIMUM WIDTH

3.2m MAXIMUM HEIGHT

Orchard Park, Cambridge
UNisystem^{LB}

UNIPANEL[LB] IS A LOADBEARING EXTERNAL WALL PANEL ADAPTABLE FOR EVERY ARCHITECTURAL NEED, ACROSS LOW AND MIDRISE PROJECTS.

UNIPANEL[LB]

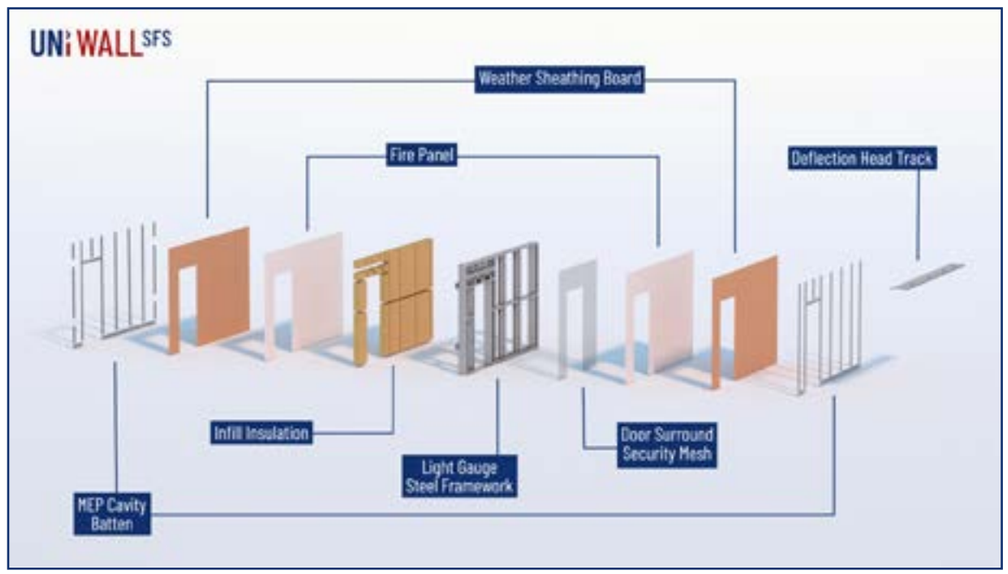


PRODUCT	Fire classification EI*	Airborne Sound Insulation (dB)*	U-Value (W/m2K)*	U-Value (W/m2K) With 50mm Rainscreen Slab	U-Value (W/m2K) With 100mm Rainscreen Slab
UNipanel LB	90	/	0.24	0.17	0.13

The performance figures provided refer to UNipanel loadbearing, excluding any finishes. U-values shown are for brickwork construction.

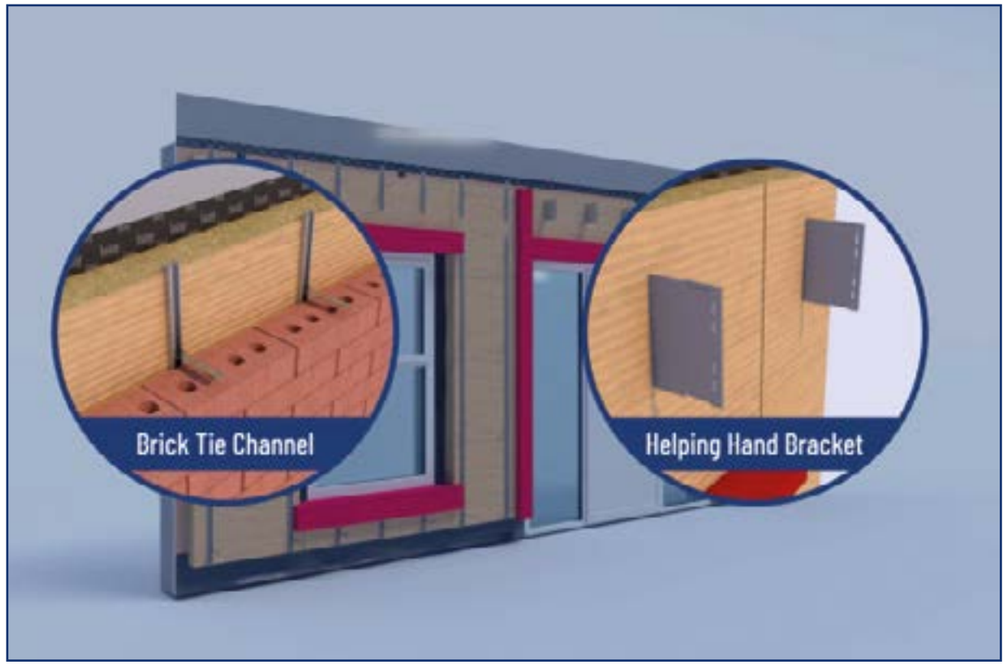
UNIPANEL[LB] WITH PRE-INSTALLED WINDOWS & DOORS

UNIPANEL[LB] SYSTEM BREAKOUT



UNi PANEL LB

EXTERNAL FINISHES

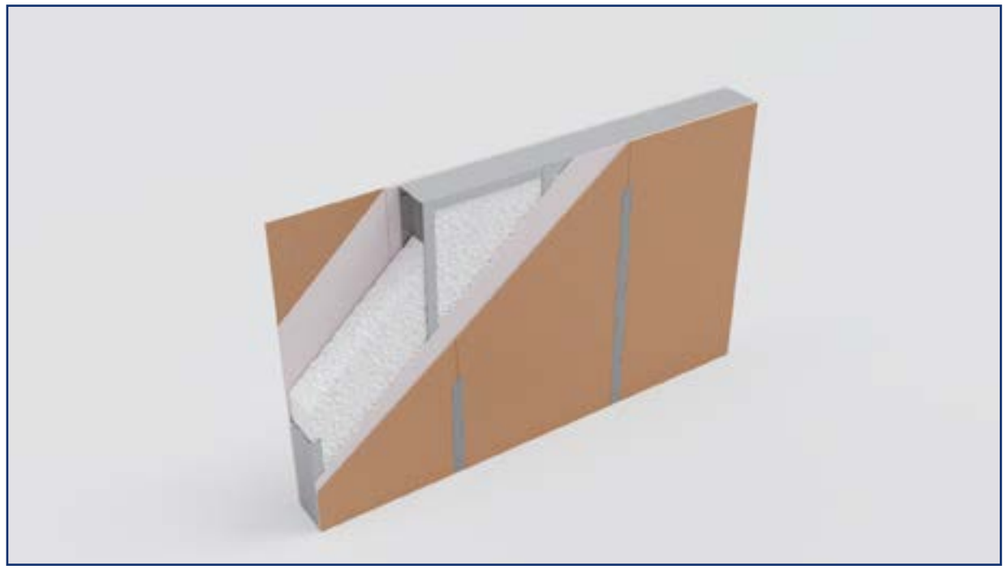


UNipanel^{LB} comes complete with the appropriate fixings for your choice of external finish. Every choice can be accommodated, whether you need brick ties for brickwork, helping hand brackets for cladding or a brick slip system, or fixings for a combination of finishes.

Edinburgh Way, Harlow

UNIWALL^LB IS AN INTERNAL COMPARTMENTALISATION PANEL SYSTEM THAT PRODUCES THE HIGHEST STANDARDS OF AIR TIGHTNESS AND ACOUSTICS.

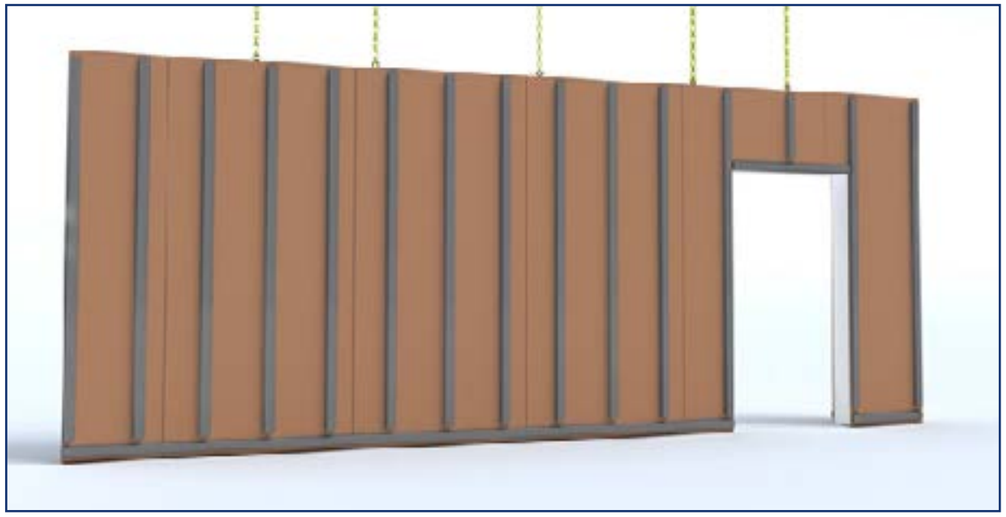
UNIWALL^LB



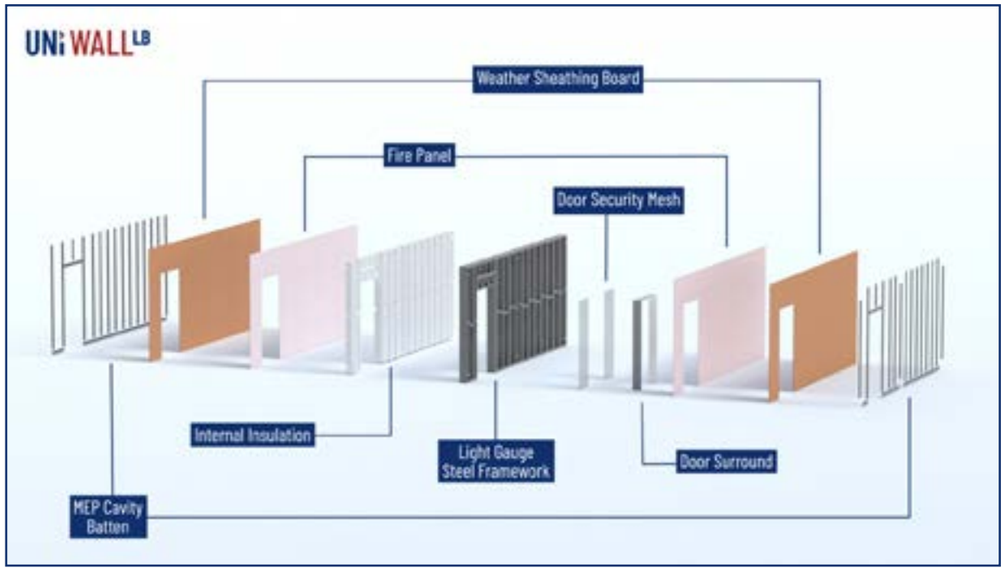
PRODUCT	Fire classification EI*	Airborne Sound Insulation (dB)*	U-Value (W/m2K)*	U-Value (W/m2K) With 50mm Rainscreen Slab	U-Value (W/m2K) With 100mm Rainscreen Slab
UNiwall LB	90	48 (Expected)	/	/	/

The performance figures provided refer to UNiwall loadbearing, excluding any finishes.

UNIWALL^LB WITH PRE-CUT DOOR APERTURE



UNIWALL^LB FULL BREAKOUT



UNiSYSTEM^{LB}

LOADBEARING STANDARD SEQUENCING

STAGE 1: GROUND FLOOR INSTALLATION COMBINING UNIPANEL^{LB}, UNIWALL^{LB} AND UNIFLOOR.

STAGE 2: UNIFLOOR OR COMPOSITE FLOOR IS LAID.

STAGE 3: BUILD UP OF MULTIPLE FLOORS UP TO SIX STOREYS, USING UNIPANEL^{LB}, UNIWALL^{LB} AND UNIFLOOR.

STAGE 4: BUILDING IS COMPLETED WITH A COMPATIBLE ROOF SYSTEM.

FLOOR OPTIONS UNiFLOOR

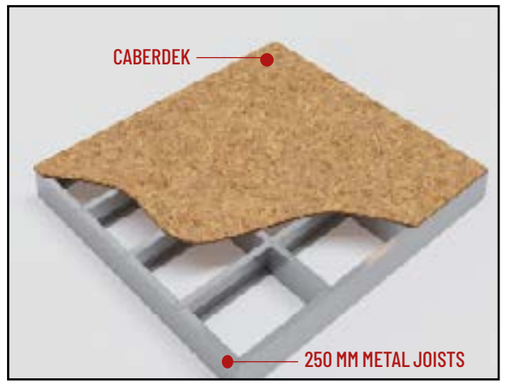
UNISYSTEM[LB] CAN INTEGRATE WITH A NUMBER OF MODERN FLOOR SYSTEMS AS WELL AS CONCRETE, STEEL OR TIMBER STAIRCASES AND UNIFLOOR.

UNifloor is a versatile and cost effective floor cassette system specifically designed to seamlessly integrate with UNisystem[LB]. It is manufactured from the same robust light gauge steel profiles as our UNisystem[LB] then covered in durable OSB. This allows it to be insulated from below before final fix.

UNifloor can also be used as a roof cassette or roof panel system, providing a weatherproof building fabric ready to finish.

UNifloor utilises 200mm vertical studs at maximum 600mm centres, with closer centres as required for the design/ loading. It can span up to 5 metres at 200mm increasing to 5.5m with the use of Frameclad 250mm deep flange joist.
It can be left in place as the attic floor and insulated from below before final fix.
it can be left in place as the attic floor and insulated from below before final fix.

Composite floor profiles
UNisystem can also be integrated with a number of composite floor systems, the concrete providing improved thermal mass, as well superior acoustic, fire and structural performance where required.



ROOF OPTIONS

UNISYSTEM[LB] CAN INTEGRATED WITH A NUMBER OF MODERN ROOFING SYSTEMS:

- Metal Profile Decking
- Timber Trusses
- Modular ‘Smart’ Roof
- Composite Roof Profiles

PRECISION INSTALLATION

UNISYSTEM INSTALLATION CAN BE UNDERTAKEN BY YOUR REINFORCED CONCRETE OR STEEL FRAME CONTRACTOR OR BY BRITISH OFFSITE. PANELS ARE MANUFACTURED AHEAD OF SITE REQUIREMENTS AND STORED SECURELY PENDING DELIVERY TO SITE.

Panels are lifted immediately into place from our purpose-made delivery vehicles and fixed into place via fixing brackets. These are screwed into the adjacent panel/ structure with Ejot LS 5.5x50mm Tek screws or M10 x 60mm Excalibur bolts, as required.

Panels over 5 metres in length are temporarily propped, in line with guidelines in the British Offsite installation manual. In instances where the UNipanel sits on a flat concrete slab, these are mechanically fixed to the concrete slab using 50=75mm angle brackets and M6 Excalibur bolts at maximum 600 centres (100mm from ends). Props can be removed as soon as the reinforced concrete slab for the floor above has cured.

British Offsite provide complete installation guidelines to facilitate the installation of all products as well as lifting plans and RAMS.

MEMBERSHIPS AND ACCREDITATIONS COMMITTED TO THE HIGHEST STANDARDS

WE'RE AN ACTIVE MEMBER OF SEVERAL INDUSTRY BODIES AND WORK WITH OUR INDUSTRY PARTNERS TO DRIVE INNOVATION AND STANDARDS FURTHER. WE'RE ALSO VERY PROUD OF THE MANY THIRD PARTY ACCREDITATIONS OUR PRODUCTS AND QUALITY SYSTEM HAVE ACHIEVED.

Members of

Accreditations

Abbey Quay, Barking
UNisystem^{SFS}

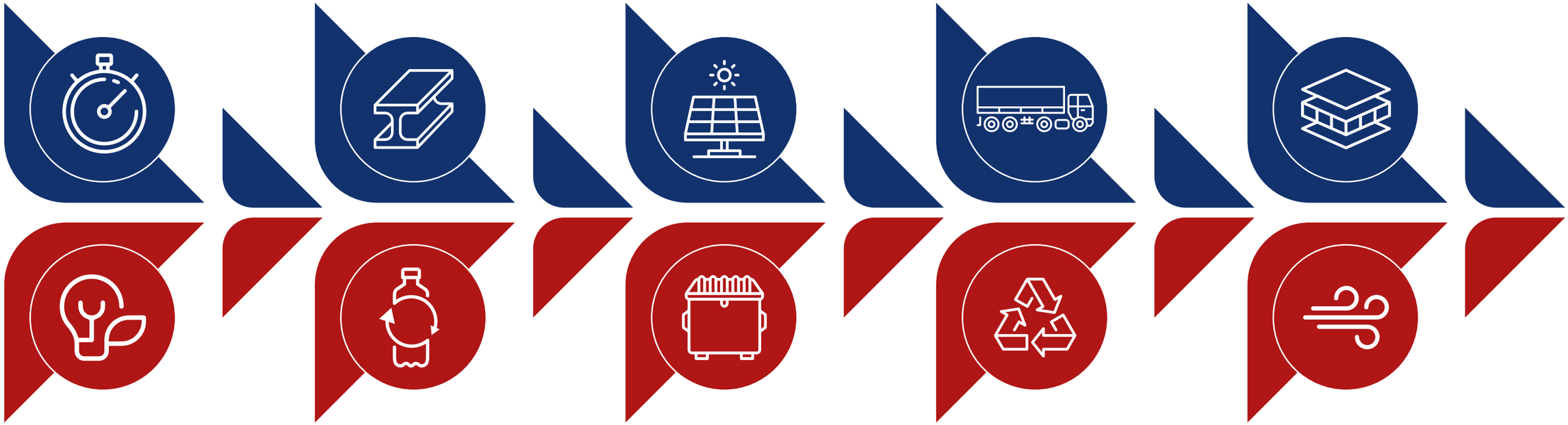
NHBC RECOGNITION

70-80% of new homes built in the UK every year are covered by NHBC warranty and insurance policies, which demonstrates the scale of opportunity for UNisystem and our build partners.

British Offsite's UNisystem has been rigorously assessed and meets the National House Building Council's robust standards, leading to the award of the highly coveted 'NHBC Accepts' certification.

SUSTAINABILITY
TARGETING NET ZERO CARBON

ACROSS OUR VALUE CHAIN – FROM PRODUCT DEVELOPMENT TO THE FINAL OPERATION OF BUILDINGS – WE'RE REDUCING ENERGY CONSUMPTION AND WASTE AND INCREASING OUR USE OF RECYCLED MATERIALS. WE CALL THIS OUR "FABRIC FIRST" APPROACH. IT RESULTS IN ENERGY EFFICIENT BUILDINGS THAT ARE MORE COST EFFECTIVE TO RUN AND HELP TO PROTECT THE PLANET.



DEVELOPMENT

Design of the Horizon factory with Randek UK focused on precision and efficiency, utilising state-of-the-art machinery with energy control measures built in.

Continuous improvement of UNisystem and our BOS Fitout range, drives energy efficiency in the production and operation of buildings.

SOURCING

Responsibly sourced steel for UNisystem's core contains 38% recycled steel.

The insulation layer on UNipanel is made from recycled bottles.

MANUFACTURING

Solar panels on our Horizon factory roof generate renewable energy.

Precision just-in-time manufacturing optimises the use of raw materials and reduces waste.

LOGISTICS

Just-in-time manufacturing methods lead to fewer deliveries to site, and with the work of up to five trades combined in one panel, road miles and energy consumption is reduced on projects.

Durable 100% recycled packaging reduces the amount used and we ensure none goes to landfill.

PRODUCT

The superior airtightness of UNisystem, due to precision manufacturing, increases building insulation and reduces energy consumption.

Our panels come with the option of pre-installed glazed windows with exceptional airtightness, increasing the insulation of homes.

TAILORMADE LOGISTICS

BRITISH OFFSITE'S IN-HOUSE LOGISTICS SERVICE IS A FURTHER MAJOR BENEFIT OF UTILISING UNISYSTEM FOR YOUR HOUSEBUILDING, MID-RISE OR HIGH-RISE PROJECT. WE HAVE COMPLETE CONTROL OVER THE SAFETY AND SECURITY OF PANELS AND MAINTAIN CLOSE CONTACT THROUGHOUT BUILD TO DELIVER PANELS TO YOUR SITE EXACTLY WHEN THEY'RE NEEDED.

We have our own fleet of vehicles which includes HGVs of different sizes and technical capabilities, so we can meet different needs. All vehicles are purpose-made to carry UNipanel, UNiwall and UNifloor safely and securely, whether to UK sites or overseas.

By managing our own fleet we have the flexibility to choose exactly the right HGV to carry specific lengths of panels, or a vehicle that is best suited for a particular site setting. For example, we have a rear-steering axle vehicle that's suitable for navigating constrained and busy urban settings, and a smaller, rigid vehicle that's appropriate for express deliveries.

All vehicles are fitted with real-time tracking, which enables our customer service team to provide accurate updates on progress, no matter where vehicles are in the UK or Europe, or even further afield. We offer one-to-one customer service, with our logistics team in direct conversation with programme and site managers long before build begins.

WHERE TO FIND US

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Head Office

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BRITISH OFFSITE
Manufacture · Construction