



# INTRASTACK

LOW-RISE HOUSING

## STEEL FRAME

▶ CREATING CERTAINTY AT THE CORE OF ANY  
STEEL FRAME PROJECT.

**INTRA  
STACK**◀

# › INTRASTACK LOW-RISE HOUSING

## WHAT IS IT?

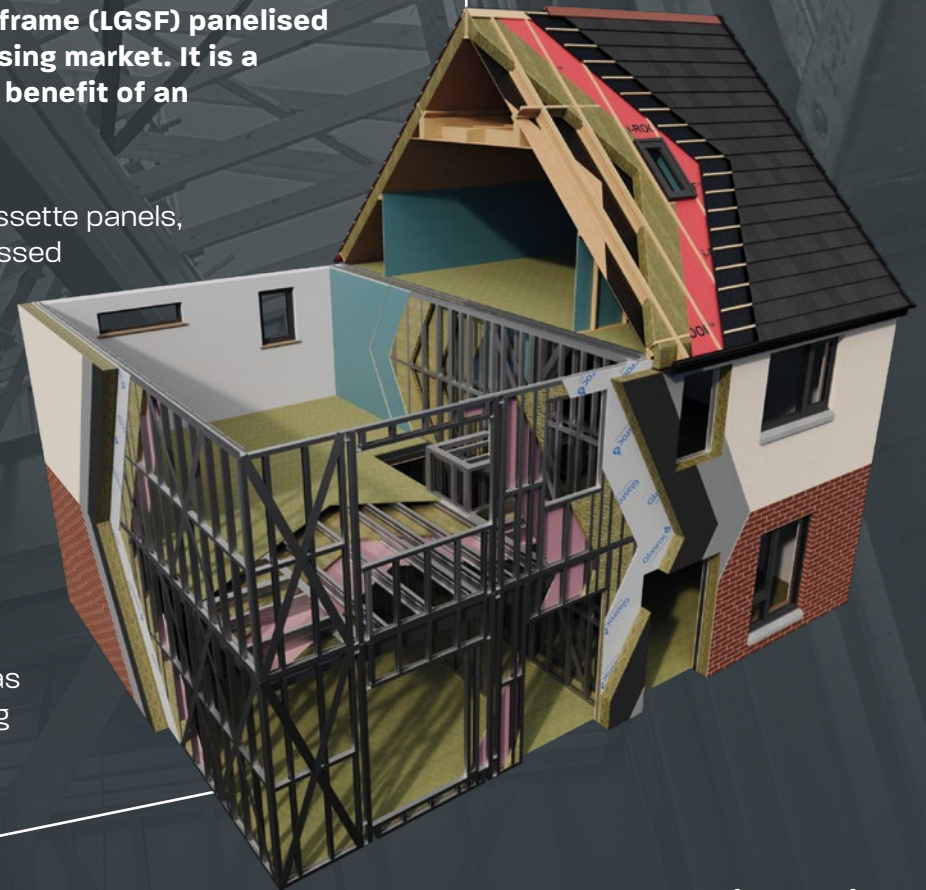
**The Intrastack Low-Rise Housing system (ILRH) is a light-gauge steel frame (LGSF) panelised structural system, specifically developed to service the low-rise housing market. It is a non-combustible off-site construction solution that provides the key benefit of an accelerated build programme.**

The system consists of external and internal loadbearing wall and floor cassette panels, manufactured in a factory environment using cold rolled steel. A timber trussed roof or room-in-roof cassette solution can be added.

External walls are clad as standard with Glasroc X sheathing board, providing both fire and weather protection to the exterior. The internal walls are supplied as open panel LGSF, ready to accept first-fix plumbing and electrical run-through. The floor cassettes are pre-fitted with P5 chipboard or OSB3 structural decking to form the intermediate floor solution, these are hung from the loadbearing walls below on joist hanging angles – locking them into the structure.

The system can accommodate a variety of external façade options such as traditional masonry, lightweight render, and rainscreen cladding – providing flexibility to meet all local planning requirements and housing typologies.

Intrastack designs, manufactures and delivers the ILRH system to each customer's specification.



**Intrastack Low-Rise Housing  
Steel Frame House with  
room-in-roof, i-Roof,  
from Roofspace Solutions**

# › WORKING WITH YOU AND OUR SUPPLY CHAIN

## THE SERVICE

Intrastack's team of experts work closely with you to understand your project-specific needs. By looking at the appropriate solution for your build, we ensure that you receive the optimal solution to make your project a success.

We are proud of our commitment to our customers' experience, and we know that our customers come back time and again, because of the relationships we build, the service we provide and the tailored-solutions we supply.

Each project is unique and every customer has different needs. That's why Intrastack designs, manufactures and delivers the ILRH system to suit your specific requirements.



### **A Safe Pair of Hands**

Intrastack is a tried & tested solution, and with extensive experience across the construction industry, we are now bringing this same approach and experience to the low-rise-housing markets.



### **Strong Values**

Through honesty, integrity, professionalism, and customer-centricity, we deliver on the promises we make.



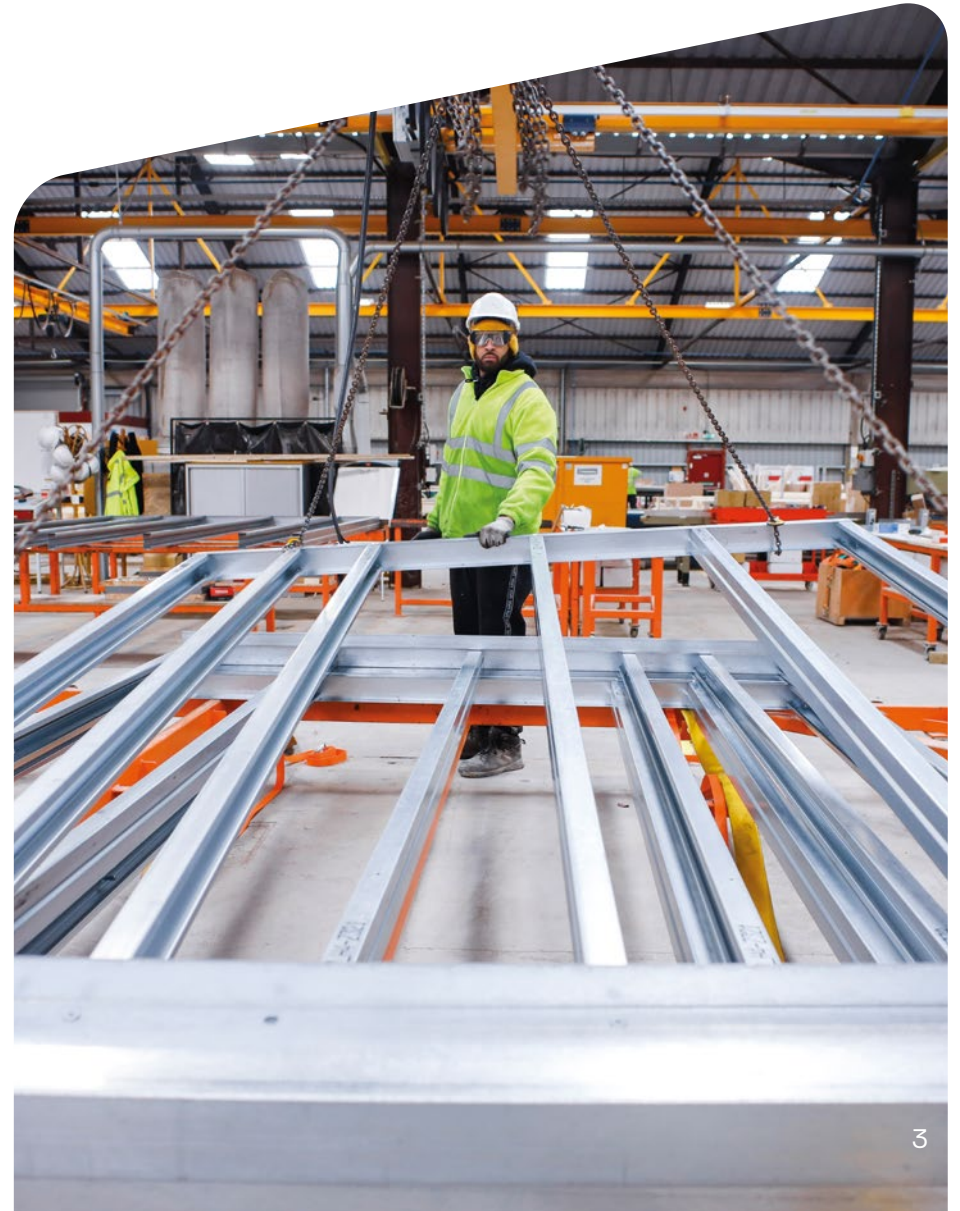
### **Fully-tested Build-ups**

We have brought the same fully-comprehensive testing regime from our medium-rise solution to low-rise housing; providing a fully non-combustible solution to address fire-in-construction risk.



### **Work as Part of Your Team**

We work with you from early-design, right through to hand-over, as part of your team. At Intrastack we pride ourselves on delivering certainty to your projects.



# > ILRH

## SYSTEM BENEFITS

**Intrastack's light-gauge steel frame solution is helping to transform the low-rise housing market in the UK. With its numerous benefits, Intrastack Low-Rise Housing (ILRH) is the ideal solution for housing developers and builders.**

Having proved itself in the multi-storey, multi-occupancy landscape, Intrastack is now looking to lead the way in off-site construction technologies for the low-rise sector; providing cost-effective and durable solutions for housing providers, including social and affordable housing, assisted living facilities, and care homes.

Benefits of LGSF  
in low-rise housing  
construction

### Speed and Efficiency:

Intrastack's panelised LGSF structures are efficient to transport and install at-site, with the structure being completed within days rather than weeks when compared to traditional builds. This helps reduce the overall programme significantly (by up to 50%).

### Durability and Longevity:

Light-gauge steel frame is incredibly strong and durable, and it can withstand extreme weather conditions. Steel does not rot, warp, shrink, or crack, ensuring that homes built with steel will last for generations.

### Reduced Carbon & Waste:

Steel frame provides a considerable reduction in associated on-site waste material, and up to a 20% reduction in embodied carbon in the building fabric. Due to optimised loading & logistics, Intrastack can also reduce vehicle movements to site.

### Design Flexibility:

The possibilities for customisation when using ILRH are extensive. Intrastack's advanced structural panelised system allows for considerable design flexibility, enabling a wide range of house types to be delivered.

### Cost Effective:

Light-gauge steel frame is not only faster and more efficient, but it can be very cost-effective compared to other construction methods. With reduced construction times and lower labour costs, the combined savings and quicker return-on-investment all help provide a compelling commercial proposition.



## > ILRH TESTING & RESTRICTIONS

Intrastack continually undertakes extensive fire testing across all systems, ensuring our solutions meet, and exceed, all legislative requirements. We recognise that fire safety is a critical consideration for all of our customers. So, we take great care to ensure our solutions have an extensive range of tested build-ups that can be used to address all fire safety requirements for any specific project.

## > U-VALUE TABLE ACHIEVED VALUES

### What is a U-value?

A U-value (given in  $W/m^2K$ ) is the rate of transfer of heat through a structure divided by the difference in temperature across the structure. It is a method of calculating **thermal transmittance**.

The U-value of a wall is affected by the materials used in its construction. This table gives an indication of values but please contact us for a project specific calculation.

Frame depth (mm)	External finish	Polterm thickness (mm)	Internal board	Insulation within cavity	U-value achieved ( $W/m^2K$ )
70	Masonry	125	1x 15mm Fireline	APR 1200 (full fill)	0.18
70	Masonry	180	1x 15mm Fireline	APR 1200 (full fill)	0.15
70	Render	150	1x 15mm Fireline	APR 1200 (full fill)	0.17
70	Render	180	1x 15mm Fireline	APR 1200 (full fill)	0.15
100	Masonry	100	2x 12.5mm Fireline	APR 1200 (full fill)	0.19
100	Masonry	150	2x 12.5mm Fireline	APR 1200 (full fill)	0.15
100	Masonry	200	2x 12.5mm Fireline	APR 1200 (full fill)	0.13

Working with our Off-Site Solutions sister brands, Pasquill and Roofspace Solutions, Intrastack can offer a timber roof truss or room-in-roof solution with values as low as  $0.15 W/m^2K$ .

Project specific U-values can be calculated as part of the Intrastack design process.

# ➤ 30MIN EXTERNAL - LOW RISE LOAD BEARING FIRELINE GLASROC X

TESTED IN ACCORDANCE WITH BS EN 1363-1:2020 and BS EN 1365-1:2012

## WALL BUILD UP:\*

- 1 layer 15mm British Gypsum Gyproc Fireline plasterboard (fireside)
- 70mm Intrastack loadbearing steel frame
- 65mm Isover Acoustic Partition Roll (APR 1200) in stud zone
- 1 layer 12.5mm British Gypsum Glasroc X sheathing board (non-fireside)
- 180mm Isover Polterm Max Plus insulation (non-fireside)

Tested build up did not include breather membrane or vapour control layers, client to assess.

## FIRE TEST RESULT:

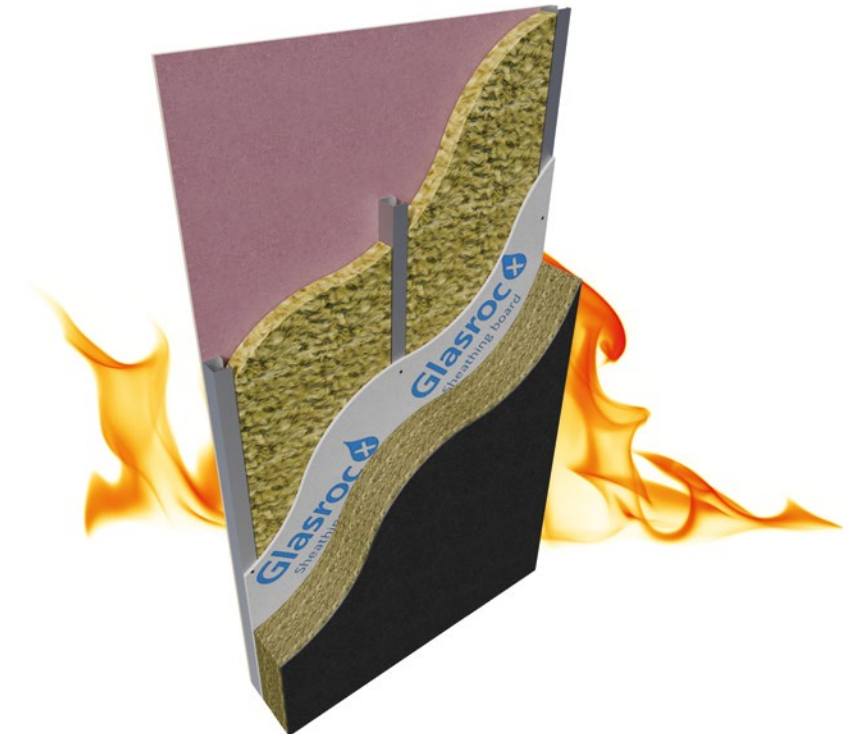
- 30 minutes
- Tested in accordance with BS EN 1363-1:2020 & BS EN 1365-1:2012
- Tested load 46.2kN
- Direction of fire: in to out (internal lining through to façade)

Disclaimer:

\* Restrictions apply for material specification and fixing details for the testing to be relevant. These will be accounted for within the Intrastack design platform. All testing information to be applied using the direct field of application of the results.

## APPLICATION RESTRICTIONS:

- Minimum stud depth 70mm
- Suitable for low rise housing up to 3 storeys only
- Maximum stud centres 600mm
- Minimum stud metal gauge 1.2mm



# ➤ 60MIN EXTERNAL - LOAD BEARING WALL FIRELINE & GLASROC X

TESTED IN ACCORDANCE WITH BS EN 1363-1:2020 and BS EN 1365-1:2012

## WALL BUILD UP:\*

- 2 layers 12.5mm British Gypsum Gyproc Fireline plasterboard (fireside)
- 100mm loadbearing steel frame
- 100mm Isover Acoustic Partition Roll (APR 1200) in stud zone
- 1 layer 12.5mm British Gypsum Glasroc X sheathing board (non-fireside)
- 180mm Isover Polterm Max Plus insulation (non-fireside)

Tested build up did not include breather membrane or vapour control layers, client to assess.

## FIRE TEST RESULT:

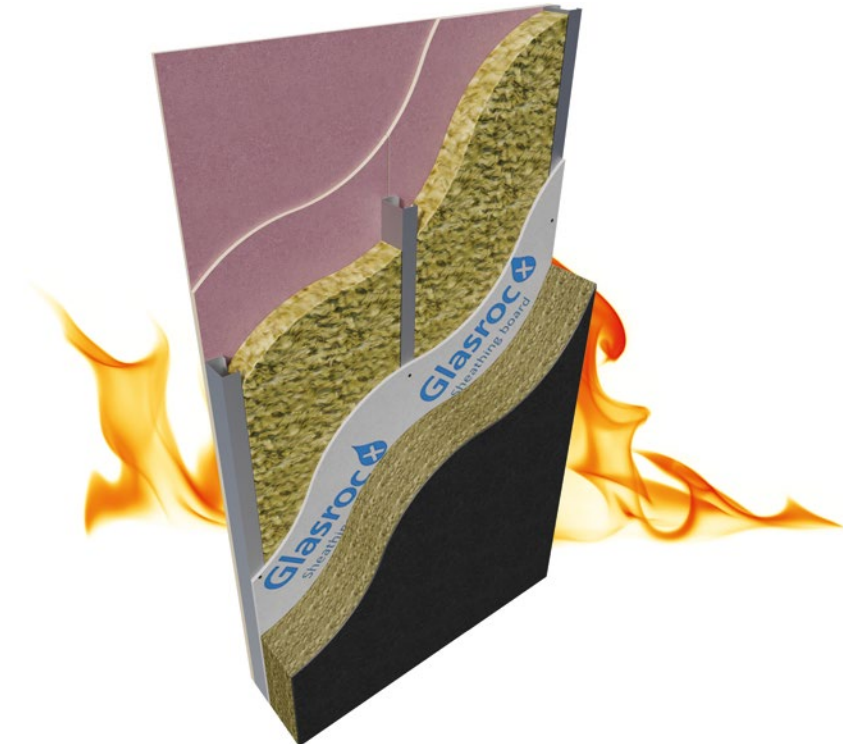
- 60 minutes
- Tested in accordance with BS EN 1363-1:2020 & BS EN 1365-1:2012
- Tested load 138kN
- Direction of fire: in to out (internal lining through to façade)

Disclaimer:

\* Restrictions apply for material specification and fixing details for the testing to be relevant. These will be accounted for within the Intrastack design platform. All testing information to be applied using the direct field of application of the results.

## APPLICATION RESTRICTIONS:

- Minimum stud depth 100mm
- Maximum stud centres 600mm
- Minimum stud metal gauge 1.2mm



# › 30MIN INTERNAL - LOW RISE LOAD BEARING SOUNDBLOC

TESTED IN ACCORDANCE WITH BS EN 1365-1:2012

## WALL BUILD UP:\*

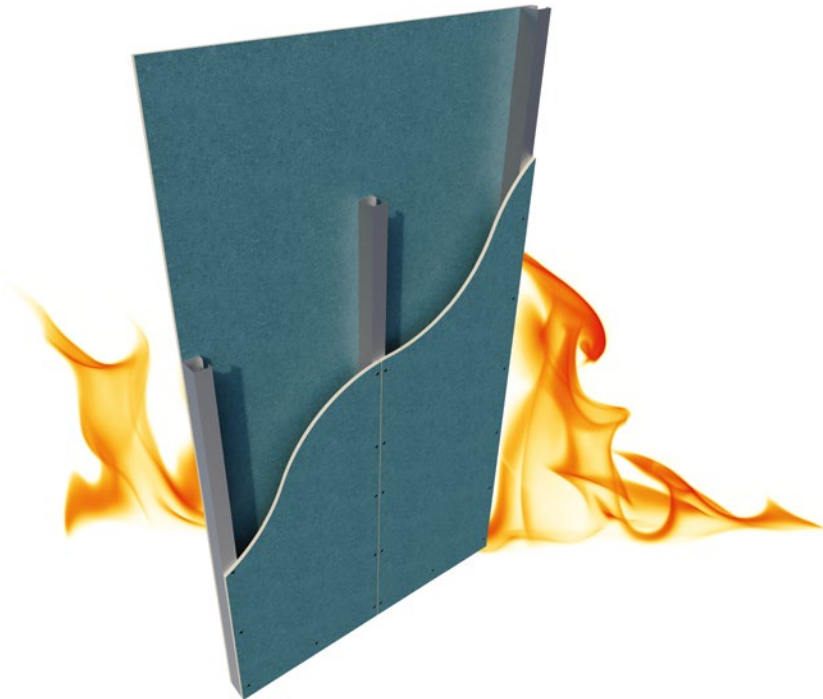
- 1 layer 15mm British Gypsum Gyproc SoundBloc plasterboard (fireside)
- 70mm Intrastack loadbearing steel frame
- 1 layer 15mm British Gypsum Gyproc SoundBloc plasterboard (non-fireside)

## FIRE TEST RESULT:

- 30 minutes
- Tested in accordance with BS EN 1365-1:2012
- Tested load 42kN

## APPLICATION RESTRICTIONS:

- Minimum stud depth 70mm
- Suitable for low rise housing up to 3 storeys only
- Maximum stud centres 600mm
- Minimum stud metal gauge 1.2mm



Disclaimer:

\* Restrictions apply for material specification and fixing details for the testing to be relevant. These will be accounted for within the Intrastack design platform. All testing information to be applied using the direct field of application of the results.



# ➤ 60MIN INTERNAL - LOW RISE LOAD BEARING SOUNDBLOC

TESTED IN ACCORDANCE WITH BS EN 1363-1:2020 and BS EN 1365-1:2012

## WALL BUILD UP:\*

- 2 layers 15mm British Gypsum Gyproc SoundBloc plasterboard (fireside)
- 70mm Intrastack loadbearing steel frame
- 65mm Isover Acoustic Partition Roll (APR 1200) in stud zone
- 50mm cavity filled with Isover Acoustic Partition Roll (APR 1200)
- 70mm Intrastack loadbearing steel frame
- 65mm Isover Acoustic Partition Roll (APR 1200) in stud zone
- 2 layers 15mm British Gypsum Gyproc SoundBloc plasterboard (non-fireside)

Tested build up did not include breather membrane or vapour control layers, client to assess.

## FIRE TEST RESULT:

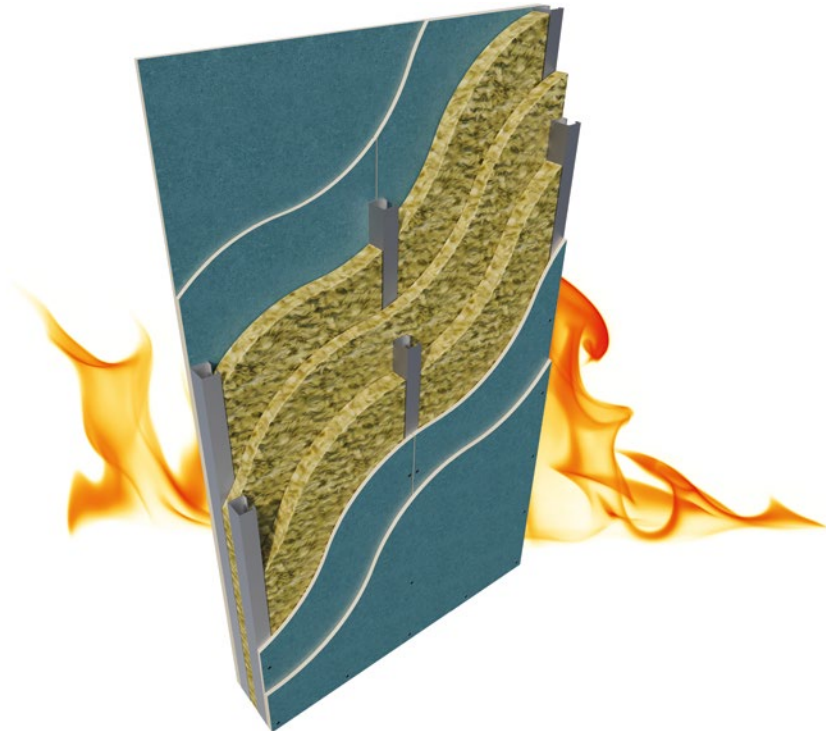
- 60 minutes
- Tested in accordance with BS EN 1363-1:2020 & BS EN 1365-1:2012
- Tested load 38.5kN

Disclaimer:

\* Restrictions apply for material specification and fixing details for the testing to be relevant. These will be accounted for within the Intrastack design platform. All testing information to be applied using the direct field of application of the results.

## APPLICATION RESTRICTIONS:

- Minimum stud depth 70mm
- Suitable for low rise housing up to 3 storeys only
- Maximum stud centres 600mm
- Minimum stud metal gauge 1.2mm



# › 30MIN FLOOR - LOW RISE LOAD BEARING

## FIRELINE

TESTED IN ACCORDANCE WITH BS EN 1363-1:2020 and BS EN 1365-2:2014

### BUILD UP:\*

- 1 layer 15mm British Gypsum Gyproc Fireline plasterboard (fireside)
- 200mm Intrastack steel joists
- 50mm Isover Acoustic Partition Roll (APR 1200) in joist zone
- 1 layer 22mm CaberDek (non-fireside)

### FIRE TEST RESULT:

- 30 minutes
- Tested in accordance with BS EN 1363-1:2020 & BS EN 1365-2:2014
- Tested load 3.0kN/m<sup>2</sup>
- Direction of fire: from below

### APPLICATION RESTRICTIONS:

- Minimum joist depth 200mm
- Suitable for low rise housing up to 3 storeys only
- Maximum joist centres 600mm
- Minimum joist metal gauge 1.2mm



Disclaimer:

\* Restrictions apply for material specification and fixing details for the testing to be relevant. These will be accounted for within the Intrastack design platform. All testing information to be applied using the direct field of application of the results.

# › 60MIN FLOOR - LOW RISE LOAD BEARING

## FIRELINE

TESTED IN ACCORDANCE WITH BS EN 1363-1:2020 and BS EN 1365-2:2014

### BUILD UP:\*

- 2 layers 12.5mm British Gypsum Gyproc Fireline plasterboard (fireside)
- British Gypsum Gypframe Resilient Bar (RB1)
- 200mm Intrastack steel joists
- 50mm Isover Acoustic Partition Roll (APR 1200) in joist zone
- 1 layer 22mm CaberDek (non-fireside)

### FIRE TEST RESULT:

- 60 minutes
- Tested in accordance with BS EN 1363-1:2020 & BS EN 1365-2:2014
- Tested load 3.0kN/m<sup>2</sup>
- Direction of fire: from below

### APPLICATION RESTRICTIONS:

- Minimum joist depth 200mm
- Suitable for low rise housing up to 3 storeys only
- Maximum joist centres 600mm
- Minimum joist metal gauge 1.2mm



Disclaimer:

\* Restrictions apply for material specification and fixing details for the testing to be relevant. These will be accounted for within the Intrastack design platform. All testing information to be applied using the direct field of application of the results.

# › SAINT-GOBAIN OFF-SITE SOLUTIONS

**Intrastack's manufacturing facility is housed at Saint-Gobain Offsite-Solutions' multi-disciplined MMC site in Chorley.**

At our facility we are able to manufacture, assemble, store and distribute our steel frame structures, ensuring the highest standards of quality control and attention to detail.

We are pleased to share our manufacturing facility site with our Saint-Gobain Off-Site Solutions sister brand, Pasquill, who have been based at the site for many years, and provide the timber-trussed roof solution onto our low-rise-housing system.

Another of our Off-Site Solutions sister brands, Roofspace Solutions, provides the cassetted room-in-roof system, i-Roof, that can be used in conjunction with the Intrastack low-rise housing system – providing additional rooms to the same overall floorplan footprint.

When you're working with Intrastack, you are working with the wider Off-Site Solutions family of brands, all working together to create the optimal solution for your projects.



# INTRASTACK

INTRASTACK WORKS WITH PARTNER BRANDS TO SUPPLY YOU WITH THE BEST SOLUTIONS FOR YOUR BUILD PROJECT.

Our partners include Saint-Gobain Off-Site Solutions and Saint-Gobain UK&I sister brands, as well as external providers and manufacturers. Here we detail some of the products that can be used as part of an Intrastack steel frame construction.

Intrastack: 100mm Loadbearing Light Gauge Steel Frame



West Fraser: CaberDek Flooring Panels



F&T Terrix: Render System

F&T Terrix: Brick Slip System



Paroc: Dual Density Mineral Wool



SwissPearl: Cembrit Windstopper Basic Sheathing Board

Roofspace Solutions' **i-Roof** also complements Intrastack's Low-Rise Housing system



SAINT-GOBAIN

Pasquill Roof Trusses



SAINT-GOBAIN

Saint-Gobain British Gypsum: 15mm Gyproc SoundBloc

Saint-Gobain British Gypsum: 12.5mm Habito

Saint-Gobain British Gypsum: 12.5mm Glasroc X

Saint-Gobain British Gypsum: 15mm Gyproc Fireline



SAINT-GOBAIN

Saint-Gobain Isover: Polterm

Saint-Gobain Isover: 100mm Acoustic Partition Roll

Saint-Gobain Isover: 50mm Acoustic Partition Roll

\* 70mm LGSF available for low-rise housing

# ➤ SYSTEM CERTIFICATIONS TESTED & CERTIFIED

## SCI/ NHBC STAGE 1

The Steel Construction Institute has assessed the structural aspects of this system for Stage 1 - System Certification and confirms that it is suitable for use in the construction of dwellings in accordance with NHBC Standards Chapter 6.10 “Light steel framing”.

## CHECKMATE

System Approval: Intrastack Low-Rise Housing (ILRH)

Certificate ref: SG0823

## ADVANTAGE APPROVAL (AHCI)

AHCI have reviewed the structural characteristics of this system for certification and confirm that it is acceptable for use in the construction of dwellings in accordance with AHCI Standards Chapter 11.0 “Light Steel Framed Buildings”.

## LABC WARRANTY & PREMIER GUARANTEE

System Acceptance: Intrastack has been awarded these certificates for the Intrastack Low-Rise Housing (ILRH) solution. This product has been assessed by LABC Warranty as being fit for its intended use, provided it is installed, used, and maintained as set out in the System Acceptance Document and documents provided by the product manufacturer.



# › CUSTOMER TESTIMONIALS

At Intrastack we are proud of the strong relationships we're building with leading contractors, developers and housing providers across all sectors of the construction industry. We are committed to delivering an exceptional service throughout each project, from sales and design to project management and production. By prioritising consistency and excellence at every stage, we ensure our customers receive a tailored solution, designed for them, and delivered when they need it. We're a safe pair of hands, and the enduring relationships we're fostering are testament to that.



## JOHN SOUTHWORTH CONSTRUCTION

**Steven Brown, Director, John Southworth Construction, said:**

*"Innovative, modern methods of construction are targeted build methods for John Southworth, and Intrastack's solution not only meets our needs but exceeds them, with its precision, quality, recyclable benefits, and the longevity that light gauge steel offers as a construction material. We are excited to be able to work with Intrastack, Manchester city council and One Manchester to integrate MMC into affordable social housing."*

## R&M PROPERTY

**Thomas McKenna, Chair & CEO, R&M Property Group Ltd, said:**

*"We are a principal contracting firm that specialises in the design and installation of new homes using Modern Methods of Construction, delivering homes up to 40% faster. For one of our recent projects, building 8 family homes, we chose Intrastack's LGSF low-rise housing system for the frame and roof. We found the design and installation to be fast and efficient, with superb professional support provided by the Intrastack sales and technical teams. We look forward to providing more clients with our mutual services."*



## R&M Property – Low-Rise Housing Project using Intrastack's LGSF solution



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Saint-Gobain Construction Products UK Limited. Registered in England, trading as Intrastack.  
Company Number: 00734396

Registered Office: Saint-Gobain House, East Leake, Loughborough, Leicestershire LE12 6JU

### **Future Homes Standard 2025**

While still in consultation at the time of writing, the purpose of the Future Homes Standard 2025 is to ensure that new build houses are future-proofed with low carbon heating and world-leading levels of energy efficiency, by embracing smart and low carbon technologies.

Intrastack's light-gauge steel frame solution is capable of reaching and, where needed, exceeding the notional performance indicated within the consultation document.

**INTRA  
STACK**