



Components
WJ Group

Certified Timber Engineering & Treatment Specialists

Timber I-Beams

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I-Beams

Overview

An I-beam is a generic term for a beam which consist of an upper and lower flange joined by a web, forming the shape of an I. The material can be virtually anything and would still be classed under this term. At WJ, we manufacture I-beams using a variety of materials, such as, PSE, KVH and Glulam timber for the flanges and OSB for the web.

Why Use I-Beams In Your Project?

Traditional construction for buildings with insulation in the floor and walls can benefit massively from the introduction of I-beams. Swapping solid timber for I-Beams allows greater weight reduction in walls and floors compared to similar dimensional framing with faster installation.

An I-beam allows for specified depths of floors, walls and roofs that can allow for insulation and services to be installed easily. The 'web' element in an I-Beam, made of OSB, is precision cut using our CNC. Holes in the web can be cut at specified sizes to allow for pipes and cabling.

The rails in the I-Beam can be made of different size grooved timber. The rails can be notched to specification.



Bespoke Sizes

We manufacture thousands of I-Beams for a range of customers throughout the UK each with varying size requirements.

As part of our manufacturing service we offer I-Beams in custom sizes and also provide custom length cross cut beams to reduce time for modular building manufacturers. These are supplied in kits packed and labelled for easy identification and installation.

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Standard Range

We offer a standard range of I-Beams up to 13m lengths. The diagram to the right (Fig. A) shows the make-up of an I-Beam with labelled dimensions. The dimension table (Fig. B) gives the dimension options available in our standard range.



Fig. A

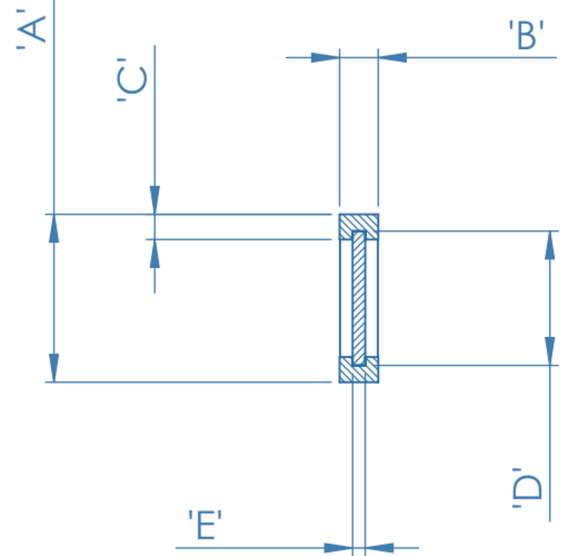


Fig. B

STYLE	DIMENSION				
	A	B	C	D	E
1	200	46	30	160	15
2	110	30	30	50	10
3	350	80	60	230	18
4	250	30	30	210	10
5	210	30	30	170	10
6	110	60	20	90	9
7	135	30	30	95	9

Design & FEA

Our in-house technical and design team can work with you to create I-Beam designs to meet your exact specifications.

We offer Finite Element Analysis and theoretical testing for stress and loads for each of your I-Beam designs, giving your traceable confidence in our product.

All drawings and renders are provided as standard with each new enquiry.



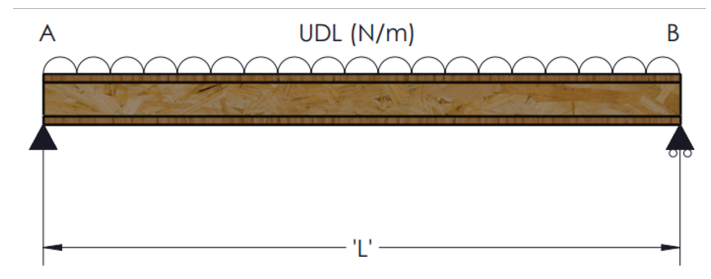
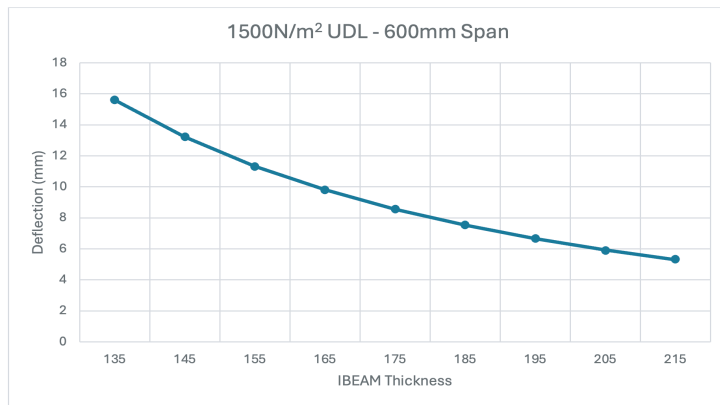
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I-Beams

I-Beam Floors

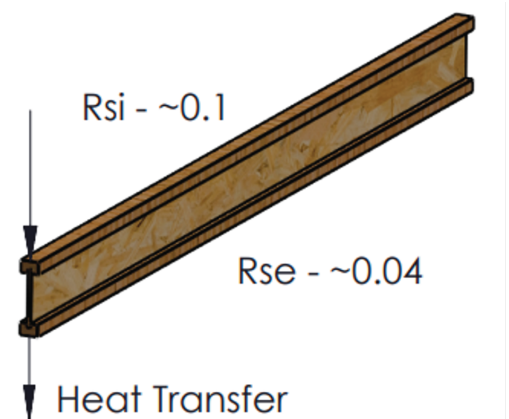
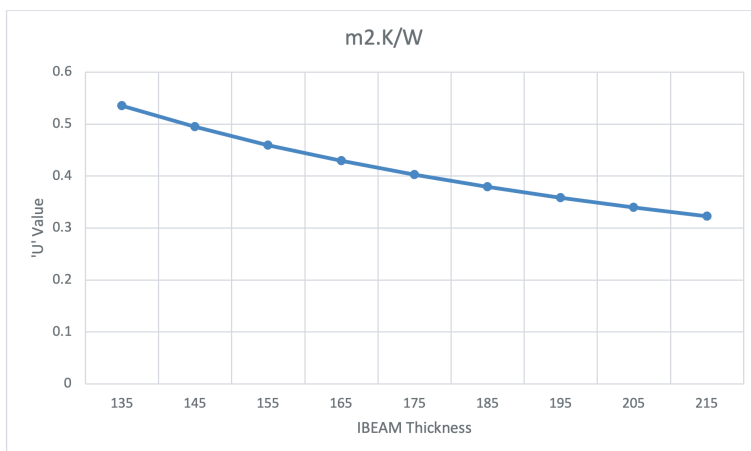
I-Beams are the ideal solution for flooring applications. Using I-Beams for floor joists provides a solid high load bearing base for your project while offering a high U-Values for thermal conductivity.

The flexibility of additional holes in the OSB web for services under the floor gives the ability to install your pipes and cabling easily along the line. Insulated floors then become even easier with I-Beams as you're able to fill the I-Beam depth with your insulation product. The below information displays the UDL at 600mm centres.



I-Beam Thermal Conductivity For Walls & Floors

Much like the floor joists, the thermal conductivity of the I-Beam wall system is a major benefit compared to solid timber framing. The below table shows the U-Value information based on thickness of I-Beam used.

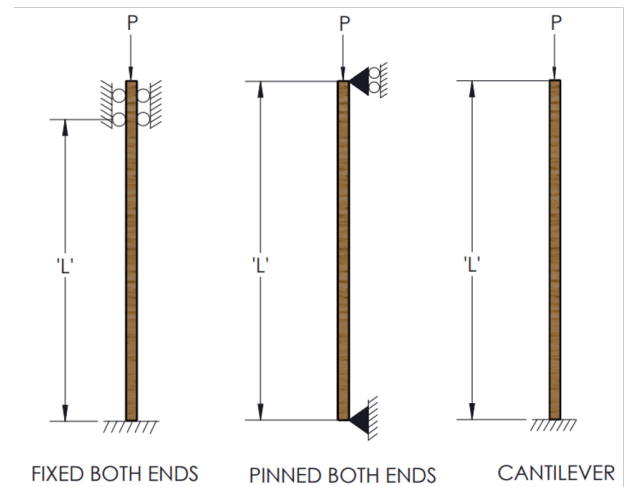
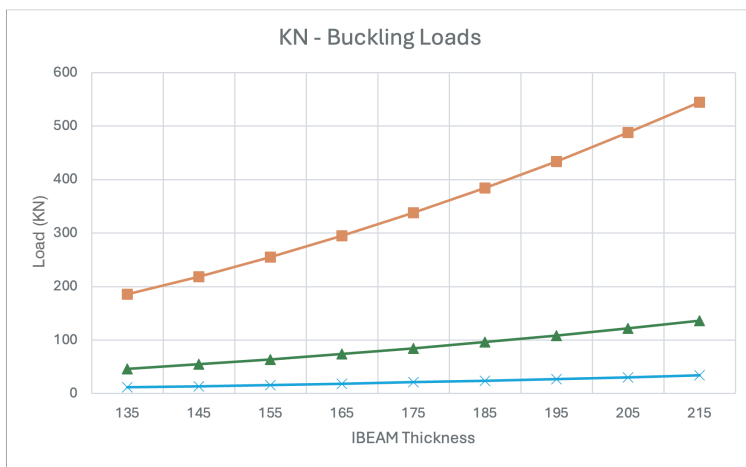


I-Beams

I-Beam Walls

I-Beams are used in walls for caravans, lodges and timber frame houses across the UK. Not only do they reduce weight compared to dimensionally similar solid counterparts, they're also very easy to work with and install. This, coupled with the ability to insulate quickly once erected, is yet another reason to choose I-Beams for assembly.

I-Beams can be used in both internal and external walls within a modular building. The diagram and table to the right show information related to buckling loads.



For consideration and transparency, all examples given are based on the below assumptions and material usage:

- Materials: Rails in PSE / Web in OSB
- Loadings based on 30x30 PSE rails
- Loadings based on 9mm OSB
- Loadings based on 1500N/m² SL
- Loadings based on length: 2500mm

Looking To Discuss A Project?

We'd love to discuss your next project or how we can help you improve your manufacturing process through the use of I-Beams.

Whether you're looking to improve the thermal aspects of your modular buildings or improve on your manufacturing efficiency, we can help.



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