

GOOD PRACTICE GUIDE FOR I-JOIST INSTALLATIONS



Applicable sections of the Technical Manual

- Section 10 – Upper Floors

Introduction

I-Joists are manufactured and designed specifically for the project, thus any deviation from the design can cause significant issues later on, e.g. using internal non loadbearing walls for support when they shouldn't. This article will provide some useful tips for what to check for when I-Joists have been installed.

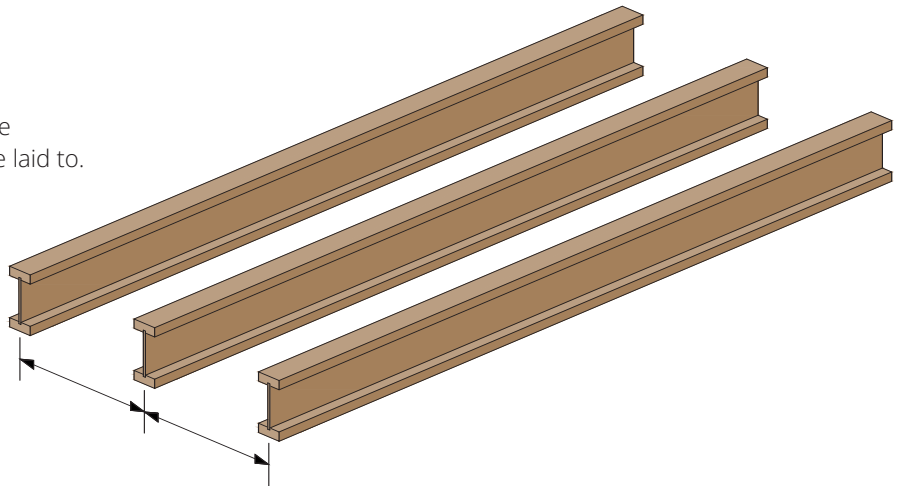
In all circumstances, the manufacturer's joist layout drawings should be reviewed by all interested parties.

I-Joists must not have the flanges cut, damaged or notched. In addition, I-Joists should be stored and handled as per the manufacturer's instructions and they should not be exposed to excessive moisture.

Key considerations

Joist spacing

The manufacturer's joist layout drawings should be checked to see what spacing's the joists should be laid to.



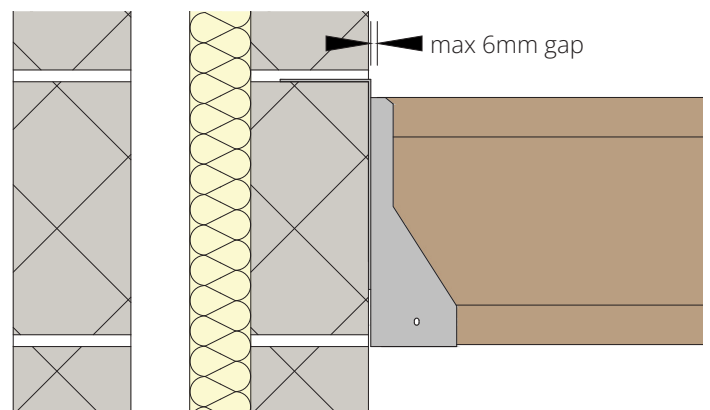
Hanger detailing

Where hangers are used, there should be a max 6mm gap between joist and hanger unless otherwise stated by the manufacturer.

The 'minimum bearing' of the I-joist is to be to the manufacturer's specification and not less than 45mm.

Where hangers are specified they should be either:

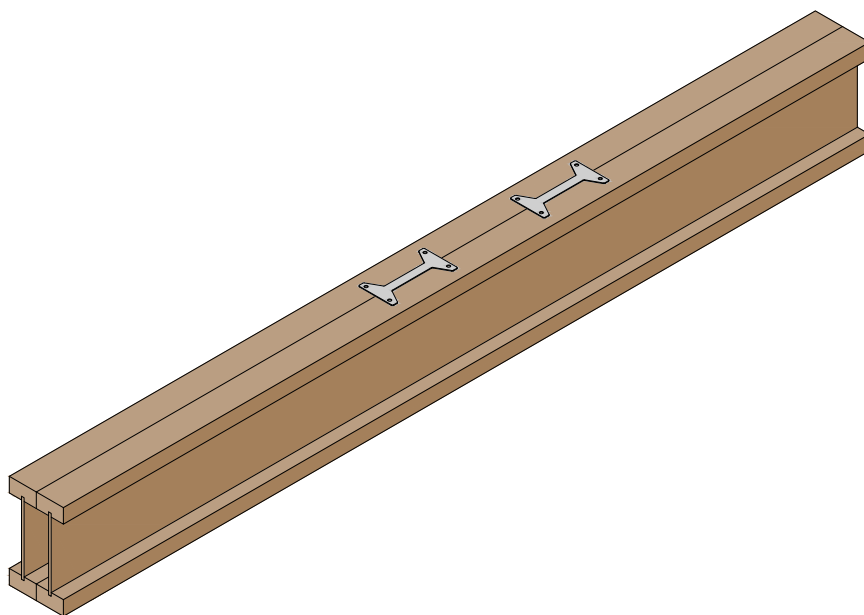
- Full depth of the joist and restrain top flange or,
- At least 0.6 x depth of the joist and have web stiffeners specified for the full depth of the joist (to both sides of the web).



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Double joist fixings

Double joists should be fixed as per the manufactures design. This may for example be with a propriety clip fixed at specified centres. It is important to ensure that the work on site is in accordance with the manufacturers design.

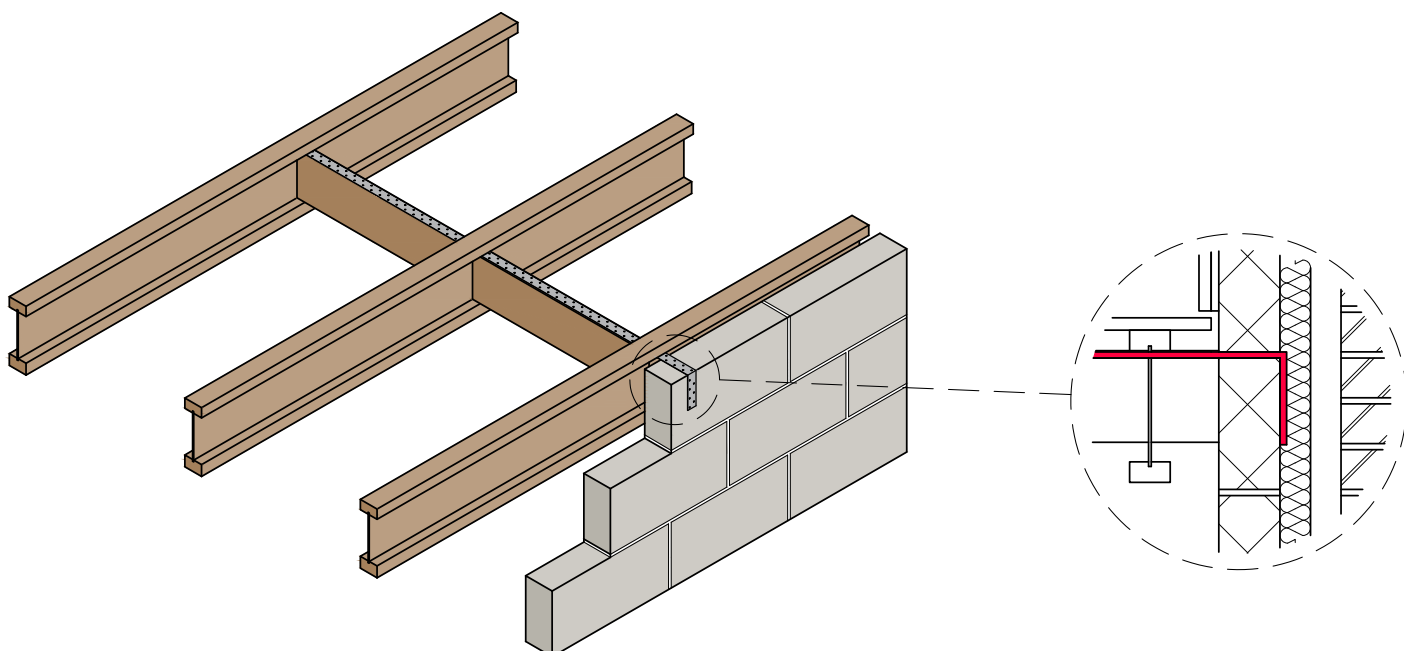


Lateral restraint

Floors should provide lateral restraint to all walls running parallel to them by means of 30mm x 5mm galvanised or stainless steel restraint straps at 2m centres.

Restraint should also be provided for walls running perpendicular to joists by restraint type joist hangers.

Other forms of restraint proven by an Engineer can be accepted.

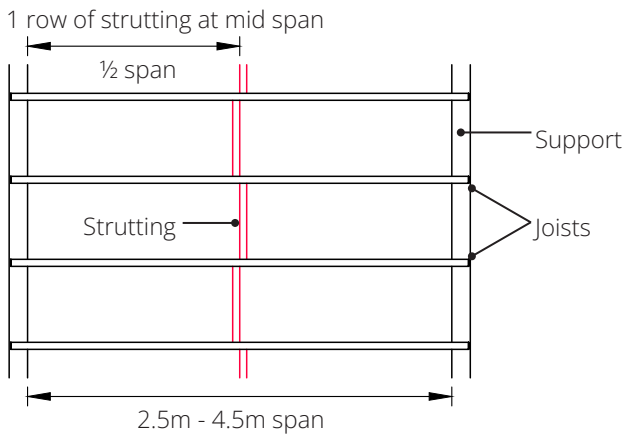


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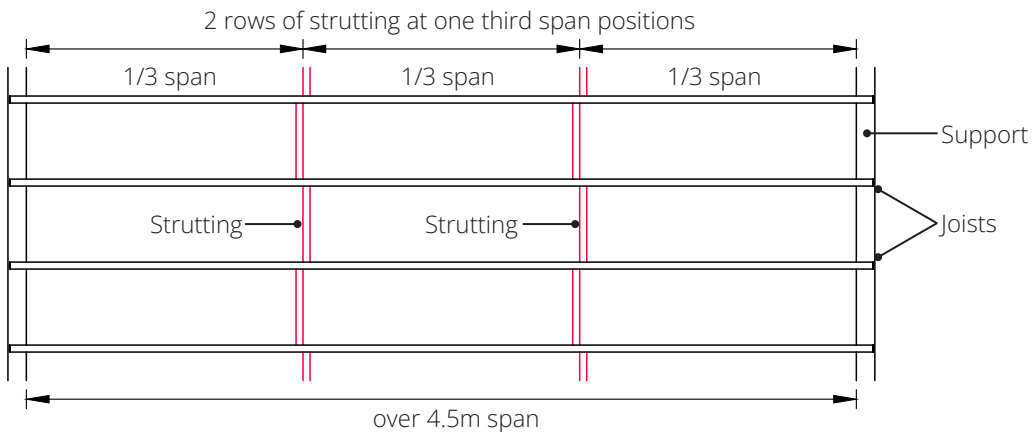
Strutting of I-Joists

Strutting or bridging of I-joists should be installed as per the below table:

Joist span (m)	Rows of strutting
up to 2.5	None
2.5 - 4.5	1 at mid-span
over 4.5	2 at 1/3 points



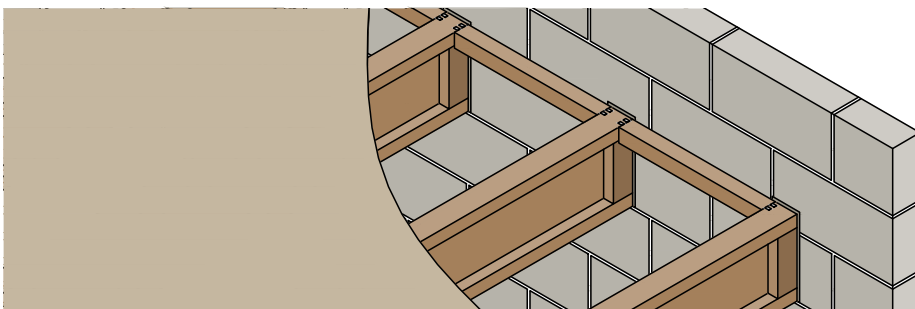
Strutting of joists with a span between 2.5m and 4.5m



Strutting of joists with a span over 4.5m

Perimeter noggins

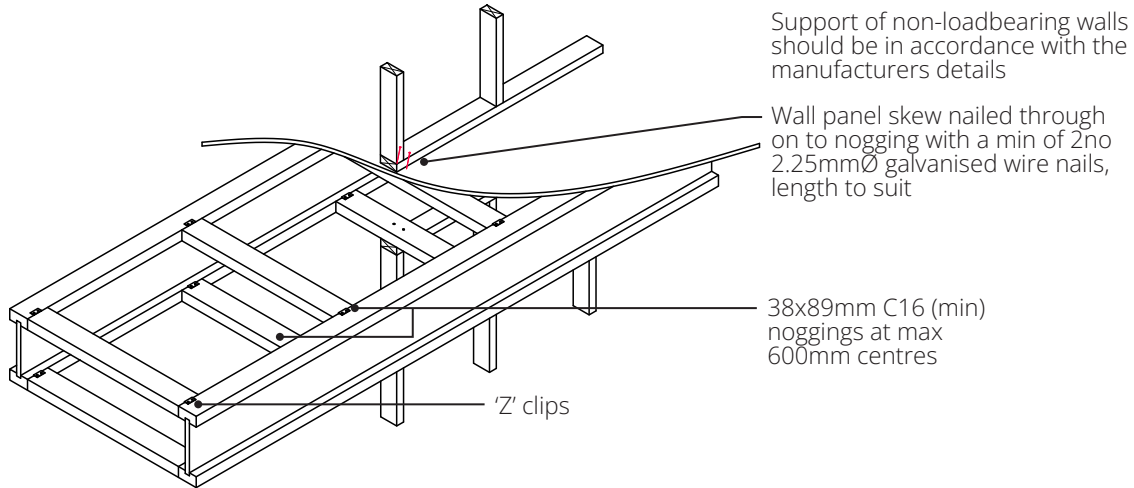
Perimeter noggins are required at the perimeter of I-joists to support the floor decking above and to create a stronger and more rigid frame. They should be fitted with Z-clips.



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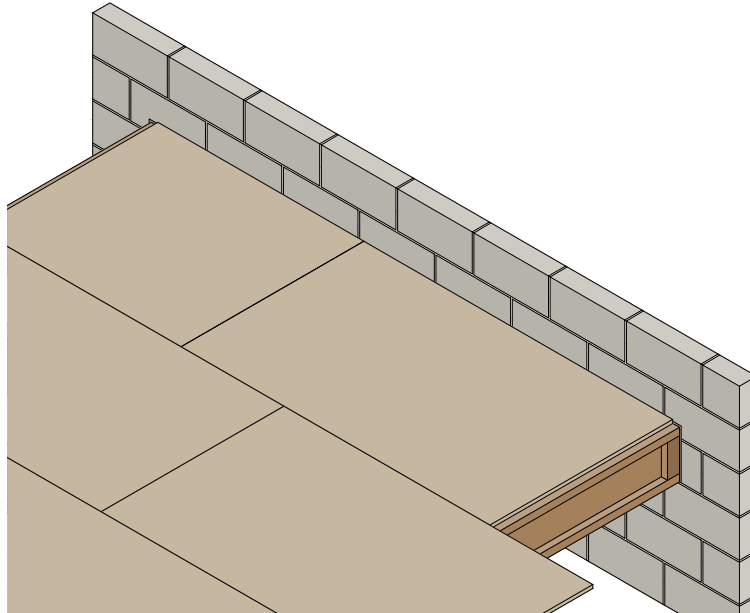
Studs running parallel over I-Joists

Where studs above run parallel to I-joists, they should be supported on multiple joists or a row of noggins. Where they are supported on noggings, the soleplate for the stud should be fixed into the noggin. Where you see multiple fixings through the decking in a row, it may be due to a stud above not being supported or fixed into the noggins.



Expansion gaps for floor decking

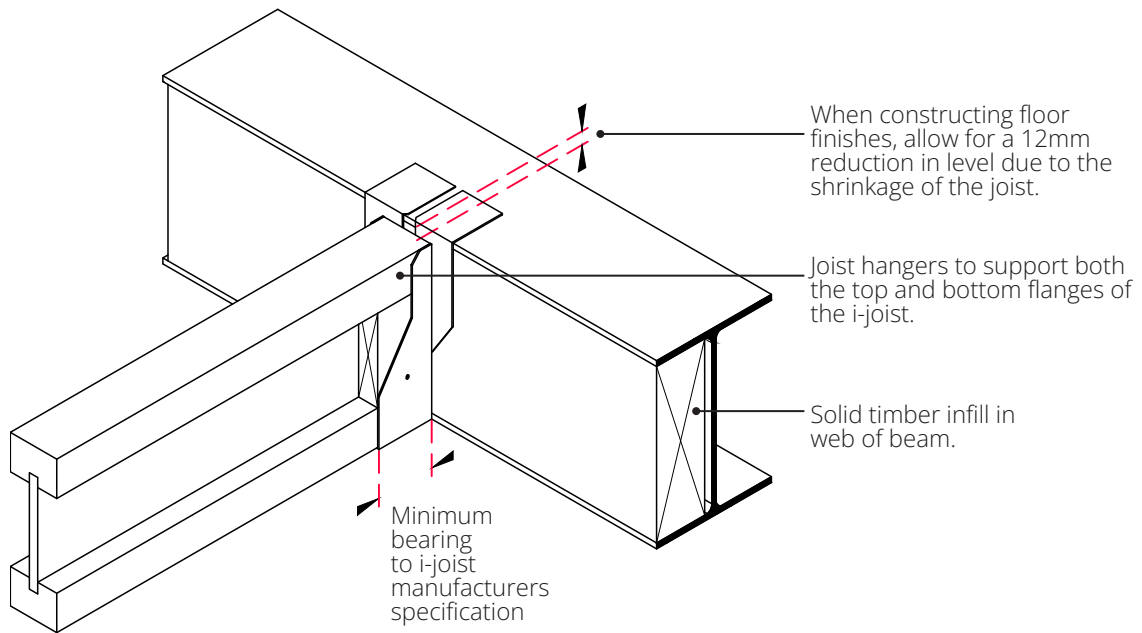
A 10mm expansion gap should be provided around the perimeter of the floor decking against a wall.



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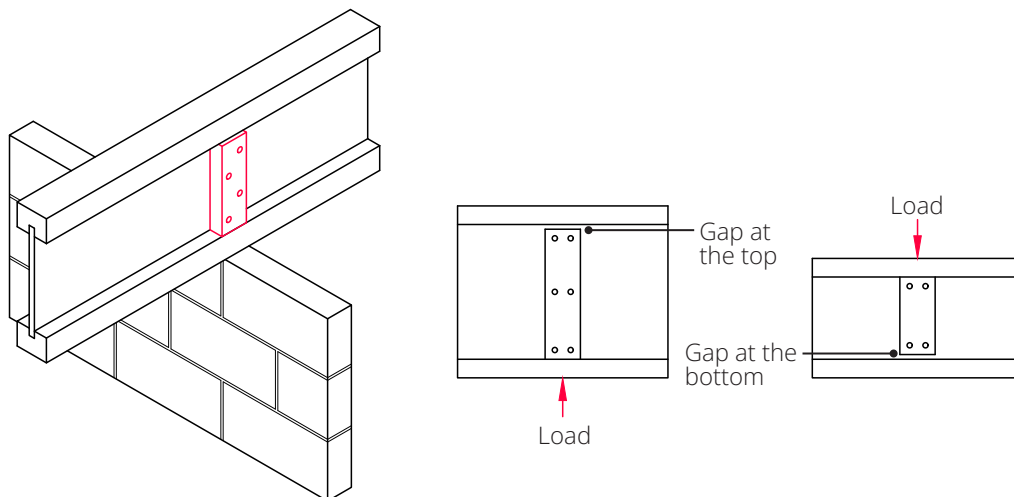
I-joists bearing on a steel beam

Where I-joists have been specified to bear onto a steel beam, the joist manufacturer's detailing should be followed. There should be a solid timber infill in the web of the steel.



Building in of I-joists on to internal loadbearing walls

To reduce shrinkage, all mortar should be adequately dry and solidly packed in, but it should not be packed up tight to the underside of the top flange. Before the floor decking is fixed, all continuous joists must be packed down to the intermediate bearing wall.



Additional blocking should be installed in accordance with the manufacturer's instructions.

Generally a gap is required at the top or bottom of the packing, dependent on the direction of the load. Generally if the load comes from the bottom e.g. bearing on an internal wall the gap should be at the top. If the load is from the top the gap should be provided at the bottom.

The backing blocks should be fixed in accordance with the manufacturers design. Generally, backing blocks on deeper joists require a higher number of fixings.

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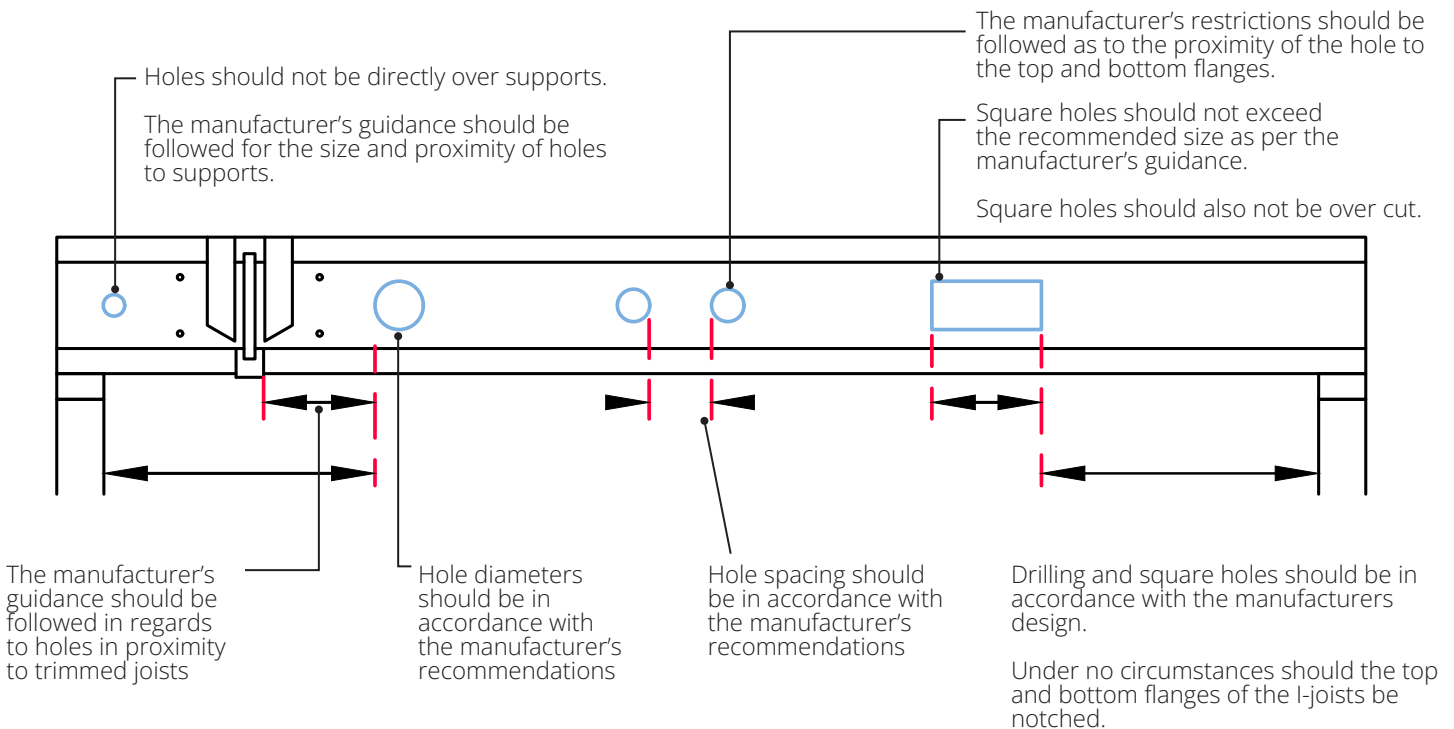


Building I-joists over non loadbearing internal walls

Where a non-load bearing internal wall (or partition) is positioned under a floor, there needs to be an allowance for any deflection to occur in the floor without transferring any loads onto the wall, and therefore making it become a 'load bearing wall' unintentionally. Typically, a deflection head (also sometimes referred to as a 'floating head' fixing) is incorporated to the top of the non-load bearing wall. This head fixing allows a specified amount of movement to occur without it imposing any direct loading onto the wall.

Notching and drilling of I-Joists

Manufacturer's instructions should be followed for notching and drilling of I-Joists.



Warranty stance

The above provides some general tips and good practice for I-joist installations. This good practice guide should be reviewed with your site team and it should be used during the first floor inspection with your Warranty Surveyor.

Every care was taken to ensure the information in this article was correct at the time of publication. Guidance provided does not replace the reader's professional judgement and any construction project should comply with the relevant Building Regulations or applicable technical standards. For the most up to date technical guidance please refer to your Risk Management Surveyor and the latest version of the Technical Manual.