

JJI-JOIST TECHNICAL BULLETIN

**SUBJECT: Bottom Flange Loads on
JJJ-Joists**
Sheet 1 of 1

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Introduction.

Concern has been expressed in the past about the validity of allowing loads to be placed on the bottom flange if JJI-Joists, via Mini Hangers for example. This Technical Bulletin reports on the results of destructive loading tests carried out by James Jones & Sons and confirms the nature of loads that may be applied to the bottom flange of JJI-Joists.

Destructive Testing

Short 300mm lengths of JJI-Joist were tested by applying load directly to the bottom flange of the joist whilst it was mounted within the James Jones & Sons test rig. A total of 15 test replications were performed. The specimen was located on the test rig and a yoke placed over the bottom flange, then load was applied to the specimen in a gradual manner via the hydraulic jack and yoke until failure occurred.

Two main failure modes were observed:

1. Most commonly failure was seen as a fairly sudden failure of the glue line between the timber flange and the OSB web with the result that the flange was pulled away from the web.
2. Occasionally failure was seen as a partial failure in the glue line connecting the flange to the web, accompanied by splitting of the timber flange near to the web. The flange was pulled away from the web leaving some timber fibres adhering to the OSB web.

Determination of Safe Bottom Flange Loads

The ultimate failure loads recorded from the testing noted above were collated and analysed. Safe working loads for bottom flange loading were obtained by dividing the ultimate test loads by the same factors of safety that were used to determine the JJI-Joist safe design values in the BBA certificate. This analysis showed that the safe bottom flange load for JJI-Joists is as follows:

Safe Bottom Flange Load for JJI-Joists = 5.5kN/m

The magnitude of the above load confirms that Mini Hangers with a safe working load of 2.0 kN can be used with confidence.

Conclusions

The testing carried out has shown that the safe bottom flange load for JJI-Joists is 5.5kN/m and that the current practice of fixing Mini Hangers to the bottom flange of JJI-Joists is satisfactory.

Notwithstanding the above, it is recommended that hoists and other plant or equipment are not fixed directly to the bottom flanges of JJI-Joists.

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Issued By: **Alan Reffold** MPhil, AIWSc