

Industrial Member Report Summary – Key Findings for Industry

Background to BS 7608:2014

TWI Core Research Programme

Author: Steve Maddox

Industrial need

BS 7608:2014, Guide to Fatigue Design and Assessment of Steel Products, underwent significant revision to include new results compared with the original 1993 code of practice. Users of the standard require advice and guidance regarding the major changes. This report provides background information and details to assist with implementing the revised standard in industry.

Key Findings

The standard will improve quality and safety for users by reducing the risk of fatigue failure of engineering structures. Details are given of the most significant changes, including:

- Introduction of hot-spot stress method with guidance on FEA.
- Modification of plate thickness correction allowing for welded joint proportions.
- Introduction of beneficial bending stress correction.
- Classification of additional weld details and re-classification of some.
- Removal of edge distance criterion for welded attachments.
- Revision of sea water corrosion fatigue data.
- Production of new rules for bolts.
- Extensive new recommendations regarding weld quality requirements.
- More detailed guidance on stress calculation and the treatment of combined loading.
- Review of Miner's rule and treatment of low stresses.
- Extra guidance on acceptance fatigue testing and statistical analysis of results.
- Advice on the application of fracture mechanics as well as the information needed to convert the design S-N curves to curves corresponding to alternative probabilities of failure, as might be required for an assessment, or indeed for basic design in some circumstances.

How to benefit from this work:

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