



Adding confidence and reducing risk - the role of independent design checking in major projects

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Summary

Responsible clients and designers commission an independent check of their designs, particularly when the scale or complexity of the project requires it. This paper explores the culture of independent checking that exists in the UK, especially in connection with major bridges, and examines the benefits to be gained from such an approach. The cost of adding confidence and reducing risk through such a check is very small compared to the enormous benefits gained, particularly on major projects.

The author draws on his own experience as well as published information to illustrate the importance of establishing such a culture of independent checking everywhere.

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1. Introduction

Following the collapse of the steel box girders bridges in Milford Haven (Fig.1) and Melbourne in 1970 and the very significant work carried out by the Merrison Committee of Inquiry in preparing new design and workmanship rules for such structures, there has been a culture of independent design checking for major bridges in the UK. [1] Similar practices previously existed for checking dams and nuclear installations, but none as rigorous as was now proposed for major bridges.



What started as a need for checking of steel box girders soon spread to encompass all major bridges and those of unusual or complex behaviour. No major bridge is now constructed in the UK without such an independent check being carried out first, and the same is true of any strengthening or major repairs to such bridges. In the case of so-called Category 3 structures, the check is carried out by consultants acting independently of the designers using completely independent analysis modelling and methodology but working to a common set of design criteria. At the end, both the designer and the checker have to certify that the design meets those criteria.

There is no doubt that such a check adds considerable value and security for a client for a tiny fraction of the construction cost. As a result, this culture of checking which is already routine for bridges in the UK is now increasingly being applied to major public buildings and other structures as well. However, it is still not universal, even in major public assembly buildings where the consequences of failure would be unthinkable.

Fig. 1 *Milford Haven Bridge, Wales, following the collapse*