

SCOSS ALERT

February 2013

Anomalous documentation for proprietary products

INTRODUCTION

SCOSS has become aware of a number of instances where certification accompanying proprietary products has stated compliance with standards or specified requirements, but the products have been found not to be in accordance with specification. On several occasions, this has led to premature structural failure of the component at loads well below the intended design capacity.

The reports relate to a variety of products, including end connectors for tension rods, but evidence has been presented which shows that the problem extends to steel plate, fasteners and other cast components. There have been occurrences of unacceptable materials, workmanship, tolerances and defects, all hidden by inaccurate, missing or anomalous records. In this respect, it is considered essential to establish the country and place of manufacture when assessing the risk of anomalous records.

It is considered that most failures have been observed in tension rod connectors because they are generally loaded to a significant proportion of their capacity on installation. Furthermore, they can be sensitive to secondary stresses if the end connections are not aligned correctly. SCOSS is also concerned that there may be a latent problem with other types of proprietary components, which will only become apparent when they experience a significant loading event.

PROPRIETARY PRODUCTS FOR NEW STRUCTURES

Proprietary products are generally offered by the manufacturer as meeting a set of technical criteria. Often these criteria state compliance with internationally recognised standards (e.g. BS, ASTM etc) or an approval system such as CE Marking. By their very nature, these criteria are generic and usually represent the manufacturer's best estimate of what the market requires.

It is important that the technical requirements for proprietary products are established and clearly defined as part of the design development. Additional criteria to those offered by the manufacturers (or covered by an approval system) may need to be defined for the product to meet the particular performance requirements of the design. Once all of the requirements for the product have been set, they should be included in the Project Specification.

Independent third party verification (by witnessing manufacture, destructive and/or non-destructive or proof testing as appropriate) is considered appropriate, irrespective of the certification provided by the manufacturer or their agent. Verification should be carried out by personnel holding internationally recognised certificates of competence in the relevant non-destructive testing technique (e.g. PCN Level 2).

It is common practice in other aspects of construction (e.g. welding) for the extent of independent verification to be set at a percentage of the total, depending on a range of factors. A similar approach is considered suitable for proprietary products provided the raw materials and place of manufacture can be established beyond reasonable doubt.

RECOMMENDATIONS FOR EXISTING STRUCTURES

The chronology of the reports received to date suggests that existing UK structures are likely to include components which are not in accordance with specification. Therefore, a retrospective assessment of the risks may be appropriate. To keep this in proportion, it is recommended that any assessment targets the most critical (i.e. significant to structural safety in the event of failure) and most vulnerable (i.e. greatest propensity to high load or damage) components. Factors to be considered include establishing the country of manufacture and the rigor applied to quality control at the time of construction. If, following this exercise, the residual risk is deemed too high, limited testing on a sample of components in the structure should be carried out. This may necessitate removal rather than in-situ testing.

Consideration may also be given to structural redundancy; this could reduce the extent or remove the need for testing depending upon the circumstances.

DETECTION OF ANOMALOUS DOCUMENTATION

It can be difficult to detect the differences between genuine and forged or misleading documentation. One government agency when investigating an example of false documentation found that details on the certificates provided for a consignment of imported components did not follow the requirements for CE marking of products, namely:

- compliance was quoted with a non-harmonised standard
- the assessment was not carried out by a Notified Body
- other supplied detail suggested that the certificate was invalid.

One of the lessons learnt was that supply chains must appreciate their responsibility to ensure that they have acted with 'due care' and rigorously check product certification. Documents may not be falsified but simply misleading so great care is needed.

REQUEST FOR FUTURE REPORTS

Reports of instances where the issues raised by this Alert have arisen can be sent in confidence to www.Structural-Safety.org where there is an on-line reporting facility.

REFERENCES

[CROSS Newsletter No 29](#), January 2013, contains examples of reports and expert comment.

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