



Certification Performance Criteria Guidance

B4.9 Structural Ties, Fixings and Connections

Revision A

Performance Criteria

Certifiers shall satisfy themselves that adequate details have been prepared for all ties, fixings and connections and that there are adequate calculations or other evidence to demonstrate the adequacy of the details used.

Background

The performance of the building and of individual structural members is frequently dependent upon adequate tying to and support from other parts of the structure.

Also the provision of vertical and or horizontal ties within a building structure will frequently be required to meet the requirements for disproportionate collapse.

It is therefore important that structural ties, fixings and connections are designed to meet the requirements of Standards 1.1 and 1.2.

Guidance

Certifiers must see that the requirements for all structural ties, fixings and connections have been assessed in accordance with an accepted methodology, have been checked by a suitably experienced person and that they are properly reflected on the warrant plans.

The requirements may be assessed by calculation or by reference to accepted guidance documents, standards, codes of practice, suppliers load tables, etc.

Steelwork connections may certified using the Third Party Designed Details option and included on Schedule 1. If this option is used there should be sufficient calculations to justify the loads within the performance specification and the warrant plans should include typical connection details demonstrating design intent.

Examples of Major Non-conformances

Absence of or grossly inadequate evidence of the Certifier's review of the design of structural ties, fixings, and connections.

The design of the ties fixings and connections clearly does not meet the requirements of Standards 1.1 and 1.2.

Absence of or grossly inadequate suitably checked details.

Absence of or grossly inadequate suitably checked structural calculations, load tables, test certification or other justification for the design.

Calculations, etc. and/or details are grossly inadequate in relation to the size/complexity of the project.

Absence of or grossly inadequate suitably checked performance specification, connection loads and typical details on the warrant plans, where steelwork connections were included on Schedule 1.

Absence of or grossly inadequate suitably checked calculations, etc. to justify the connection loads shown on the warrant plans, where steelwork connections were included on Schedule 1.

Absence of or grossly inadequate evidence to demonstrate that a review of a third party's finalised design for the steelwork connections had been carried out by the Certifier before an interim or final Form Q was signed.

Examples of Improvement Issues

Insufficient evidence of the Certifier's review of the design of structural ties, fixings, and connections.

Deficiencies in the warrant plans.

Inadequate or insufficient calculations, details, etc.

Inadequate performance specification and details on the warrant plans, where steelwork connections were included on Schedule 1.

Inadequate calculations, etc. to justify the preliminary design shown on the warrant plans, where steelwork connections were included on Schedule 1.

Inconsistencies between the design finalised by external specialist/third party and the performance specification submitted as a part of the warrant application, where an interim or final Form Q was submitted in respect of the design of the steelwork connections that were included on Schedule 1.

Insufficient inadequate evidence to demonstrate that a review of a third party's finalised design for the steelwork connections had been carried out by the Certifier before an interim or final Form Q was signed.

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