



# Certification Performance Criteria Guidance

## B4.7 Superstructure – Stability Elements

### Performance Criteria

Certifiers shall satisfy themselves that adequate details have been prepared for all stability elements, including bracing, shear walls, moment resisting frames, and that sufficient calculations have been prepared in accordance with an acceptable methodology to demonstrate the adequacy of the design.

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### Background

In order to be safe, a building should be capable of resisting all loads acting on it as a result of its intended use and geographical location. To achieve this, the structure of a building should be designed with appropriate margins of safety.

The stability elements are those structural elements which ensure that the building is capable of resisting applied lateral loading. Such elements will bracing, shear walls, moment resisting frames, racking panels, etc.

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### Guidance

Calculations for the stability elements should be carried out in accordance with the Codes and Standards listed in 'Technical Guidance Document Part 1: Structure'. They should also take into account the recommendations in Institution of Structural Engineers' publication 'Stability of Buildings Parts 1 and 2: General philosophy and framed bracing'. Where design methodologies have been used which are not based on these then Certifiers must be satisfied that the alternative approach still meets the standard required by the regulations and clearly demonstrate how they have satisfied themselves in this regard.

All stability elements must be clearly shown on the plans and should be clearly identified as being required for the stability of the building by either a clear description or an appropriate key notation.

There may be instances where a new building relies on an existing building for its stability and in such cases this must be clearly identified as a note on the plans.

The design calculations for the stability elements should be consistent with the methodology used in the stability analysis and the output from structural calculations must be properly reflected on the plans.

The level of checking undertaken will depend on a wide range of factors which include the complexity of the design and the risk associated with structural failure. For more detailed guidance refer to SER Guidance Note 7, 'Guidelines for Checking the Structural Design of Buildings'.

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### Examples of Major Non-conformances

The design of any of the stability elements clearly does not meet Requirements 1.1, 1.2 and 1.3.

Absence of suitably checked structural calculations for any stability element.

Absence of suitably checked drawings/details.

Grossly inadequate details for stability elements on the drawings

Members used to provide stability of the building are not shown on the plans. (Lack of identification of members as stability elements is an improvement issue)

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### Examples of Improvement Issues

Inadequate or insufficient details on the plans.

Inadequate or insufficient structural calculations for the design of any stability element.

Members used to provide stability of the building are not identified as stability elements on the plans, e.g. internal and external racking/shear walls, bracing, moment-frames.

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