



## Certification Performance Criteria Guidance

### B4.2 Substructure (including ground floor slab but excluding piling)

#### Performance Criteria

Certifiers must satisfy themselves that adequate details for the foundations (and/or pile caps) have been prepared and that sufficient design calculations, which take account of the overall loadings and the findings of the ground investigation report, have been undertaken to demonstrate the adequacy of the design.

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#### Background

Requirement 1.2 requires that a building must be constructed so that, in so far as the risk can reasonably be foreseen, movement of the subsoil caused by landslip, swelling or freezing will not impair the stability of any part of the building. Foundations must be designed to ensure that this requirement will be met.

Requirement 4.2 requires that reasonable precautions must be taken to avoid danger to health and safety caused by substances found on or in the ground to be covered by a building. Although the Certifier is not required to certify that the design complies with this requirement the design of the foundations, including ground floor slab, can be affected by measures taken to meet the requirement and therefore Certifiers should satisfy themselves that there has been sufficient communication between members of the design team such that it will be met.

This sub-section should be taken to include pile caps and ground floor slab.

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#### Guidance

BS 8004:1996 Code of Practice for foundations was withdrawn in March 2010 and although it is still listed in 'Technical Guidance Document Part 1 Structure', care should be exercised when using withdrawn standards.

Certifiers must see that calculations for the design of the foundations have been prepared in accordance with an accepted methodology, have been checked by a suitably experienced person and that the design output has been properly reflected in the permit application drawings.

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## Examples of Major Non-conformances

The design of the substructure clearly fails to meet Requirements 1.1, 1.2 and 1.3.

Absence of suitably checked calculations and/or details for any primary element of substructure.

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

Failure to document why there are discrepancies between the recommendations in the ground investigation report for the design of the foundations and the parameters used in the design.

Absence of evidence demonstrating that the certifier made adequate enquiry regarding the design of any precast foundation system and/or the experience of those undertaking the design where this was prepared by an external specialist/third party.

Absence of evidence to show that there has been adequate enquiry to establish the provisions required to meet Requirement 4.2.

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## Examples of Improvement Issues

Deficiencies in the building plans e.g. failure to identify foundation locations, dimensions, changes of level, material specification and typical reinforcement details.

Absence of a note on plans recording anticipated ground conditions and required bearing pressure.

Inadequate or insufficient calculations.

Insufficient evidence to show that there has been adequate enquiry to establish the provisions required to meet Requirement 4.2.

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