Structural Engineers Registration Ltd

# Certification Performance Criteria Guidance

## B4.3 Piling

### Performance Criteria

Certifiers must satisfy themselves that adequate details for the piling 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 1.1 requires that a building must be constructed to sustain and transmit the loadings to the ground in such a manner that there will be no ground movement which will impair the stability of the building or the stability of buildings in the vicinity.

Where it has been determined that the nature of the ground is such that it is likely that significant ground movement will occur piling is one of a number of techniques which, by the introduction of a slender columnar element into the ground, will allow the loads from the building to be transferred through weak, compressible strata or water on to stronger, more compact, less compressible and stiffer soil or rock at depth.

Certifiers must undertake sufficient enquiry to satisfy themselves that the designer of the piles has taken account of the predicted ground conditions and the loadings produced by the designer(s) of the superstructure and that the design has been checked by a suitably qualified person.

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### Guidance

The piling design is often undertaken by a specialist piling contractor who will frequently use a proprietary system where the design methodology is unique to the chosen system.

Guidance on the role of the building designer and on the preparation of a performance specification is provided in the publication: 'Specification for Piling and Embedded Retaining Walls'; Institution of Civil Engineers (2nd edition 2007).

The Federation of Piling Specialists has also published a number of guidance documents. In particular, they have published 'Minimum Requirements for Site Investigation'. Certifiers should take account of such guidance to ensure that the ground investigation provides the information required by the pile designer.

Any specification for piling should include for in situ testing of the piles, by sonic and/or load testing as appropriate. The results should be reviewed by the relevant designers to see that the assumed design parameters have resulted in a satisfactory level of performance.

Certifiers must see that calculations, drawings, specifications, etc. for the piling works have been prepared and appropriately checked and that level of performance achieved is as assumed in the design for the building.

The information provided on the plans should include:

- Pile general arrangement
- Type of pile
- Assumed pile size
- Commencement level
- Cut off level
- Design load
- Site testing details

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## Examples of Major Non-conformances

The design for the piling clearly does not meet the requirements of Requirements 1.1 and 1.2.

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

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

Drawings/specification do not describe requirements for site testing.

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## Examples of Improvement Issues

Deficiencies in the plans e.g. failure to identify pile type, size, locations, SWL and indicative cut off levels.

Inadequate or insufficient calculations.

Requirement for site testing inadequately described on the drawings or in the specification.

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October 2016