

140408 FOOTING FAILURES - A BUILDER'S DUTY OF CARE

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ISSUE

Building Services Authority (BSA) has for some time been concerned at the dramatic rise in the number of complaints received in relation to footing failures. The cost of rectification has also increased considerably. One factor that may have an influence is the so-called urban sprawl, which has resulted in land being developed on filled sites or on soils of high to extreme reactivity.

BSA's insurance liability for rectification of such claims costs the Home Warranty Insurance fund many millions of dollars each year. As a result of these costs BSA has implemented a new subsidence policy to improve practices in the industry.

While building contractors rely on professional engineers to provide designs that should be capable of withstanding the expected movement on reactive clay sites, a number of engineers are not getting it right and builders are also not complying with the designs and relevant standards.

OBSERVATION

An emerging trend of failures is associated with the use of alternative footing systems in lieu of conventional footing systems. The use of these systems has raised a significant concern for BSA. Builders must be aware that the Building Code of Australia (BCA) requires that where an alternative footing system is proposed to that described in Part 3.2, that proposal must comply with –

- a. Performance Requirement P2.1; and
- b. Performance Requirement P2.2.3





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Performance Requirement

P2.1 A building or structure including its materials and components must be capable of sustaining at an acceptable level of safety and serviceability –

- a. the most adverse combination of loads (including combinations of loads that might result in a potential for progressive collapse); and
- b. other actions, to which it may reasonably be subjected.

Investigations show that failure of these systems has been the result of a combination of factors including incorrect site classification and designs not complying with AS2870 or engineering principals pursuant to AS3600. In some cases builders have not been provided with sufficient information in relation to site condition requirements and attention to specific drain flexibility.

REASON FOR FAILURE

BSA investigations reveal that failures of these systems occur when slabs are subjected to ground movement which force the slab out of level and cause significant damage to external and internal walls.

In some cases when movement and damage has been identified, it is found that the builder has not complied with the BCA or the relevant Australian Standard.



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CORRECTIVE MEASURES

Builders have a duty of care to understand what is involved with building on reactive clay and filled sites, such as: -

- Providing adequate site drainage to prevent water ponding against external walls
- Articulation of sanitary and stormwater drainage systems and masonry construction where necessary

The above measures will accommodate the expected ground movements and will also lessen the damage sustained to residential buildings subjected to ground movement.

PREVENTION

When building on reactive sites it is important to obtain sound advice from design engineers as to the requirement of providing functional site drainage, in ground drainage systems and masonry walls. Builders also have a duty to inform the new owners of their responsibility in the maintenance of the footing and slab system.

Before beginning works, the builder should discuss with the owner issues relating to landscaping to ensure adequate site drainage can be achieved during and after construction. These issues may include paths and retaining walls, additional surface drains and future changes to the site.

REFERENCES

- The Building Code of Australia – volume Two
- AS2870 - Residential slab and footings – Construction
- AS3500.2. - Sanitary plumbing & drainage
- AS3500.3 - Stormwater drainage
- TN61 articulated walling – Cement and Concrete Aggregates Australia
Phone 3831 3288
- Foundation maintenance and footing performance: a homeowner's guide –
CSIRO Publishing - Free call 1800 - 645051