

# Risk Management – Crack Prevention

Electronic Blueprint and ENVIROSPEC provide specifications, details and training that ensure builders have access to the information necessary to construct safe buildings. Speaking at the recent Rapid Solutions Risk Management Conference, Rod Johnston outlined the factors that cause cracking in the concrete and masonry components of houses and other buildings. He stated that “The prolonged drought in Australia has caused a significant increase in the incidence of cracked buildings, particularly housing, due to the drying out of foundation soil. Although the drought has now ‘broken’, cyclical periods of wet and dry will exacerbate soil movements over the years to come.”



He detailed the two principal building systems, used in Australian house construction:

## 1. Conventional Slab-on-Ground System

Reactive clay foundations under a house may swell to form a dome or shrink form a dish. In both cases, the concrete footings or beams and slabs will bend, placing stresses on the superstructure. The design of conventional masonry veneer and cavity masonry buildings involves:

- Increasing the stiffness of the footings or beams and slabs
- Incorporating articulation joints in the masonry superstructure to “break up” the structure, thus pre-empting the formation of any cracks.

## 2. Concrete Slab-on-Ground and Reinforced Masonry Walls

Single leaf reinforced hollow concrete masonry walls built integrally with the concrete footings, incorporating steel starter bars, vertical “wide spaced” reinforcement and a continuous horizontal bond beam behave like a “stiff box”, without significant deflection or cracking.

- The bond beam must be continuous.
- Articulation joints are not required.
- The system must have sufficient bending and shear strength, particularly at door and window openings.

In his presentation, Johnston discussed the relevant Australian Standards for considering cracking in buildings:

- AS 2870-1997 *Residential slabs and footings*
- AS 3661.1-2000 *Termite management Part 1 New building work*
- AS 3700-2001 *Masonry structures*.

For further details of electronic specifications or the ENVIROSPEC Protocol - [www.electronicblueprint.com.au](http://www.electronicblueprint.com.au)



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