UR1986_56

# 1986/56. Masonry cracks at 14 Ellison Street, Punchbowl, Launceston

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*Abstract*

The external masonry wall at 14 Ellison Street is cracked extensively. Differential movements of the foundations caused by volume changes in expansive clays are considered responsible. These clays appear to be extensive in Ellison Street. The structural integrity of the dwelling should be assessed by a competent structural engineer.

## OBSERVATIONS

Considerable cracking has occurred to the house at 14 Ellison Street, Punchbowl. The house is a brick veneer, two storey structure with garage/rumpus room/workshop facilities on the ground floor. The cracking is most severe on the back wall of the residence (i.e. north-west facing wall), slightly less severe on the front wall (south-east facing) and moderate on the north-east facing wall. Hairline cracks were observed on the south-west facing wall.

## DISCUSSION

In the absence of a detailed examination of the sub-surface materials, the cracking would appear to be in response to differential movements of the foundations brought about by volume changes in the clayey soil. These in turn are brought about by changes in the moisture content of the soil – the clay swells when it becomes wet and shrinks when it dries out. If these movements are not uniform beneath the foundations, one part of the house moves relative to another. Such movements are often manifested as cracked masonry.

At present the cracking does not appear to affect the structural integrity of the dwelling. However, if the movements continue then problems might be expected with the upper level rear wall between the sliding glass door onto the sundeck and the north-east corner of the house (where the displacement in the brickwork is more than 10 mm). The cracks through the bricks at the top of the pier supporting the steel girder which spans between the stairwell and the back wall of the residence, indicate that this pier is severely distressed.

In areas of expansive soils, a planned programme of maintenance may assist in minimising the possibilities of differential movements in the foundations. The owner is the only person who can maintain reasonable moisture conditions at the site. It is changes in these moisture conditions which result in soil shrinkage or swelling.

Leaking plumbing or blocked drains should be repaired promptly. Garden watering, particularly by fixed systems, should be carefully controlled to avoid over-watering. On the other hand, proper garden maintenance should produce year round uniform moisture conditions. In general, the soil near the house at 14 Ellison Street is protected from severe moisture changes by areas of concrete or concrete paths on all but the street frontage side of the house.

## RECOMMENDATIONS

A structural engineer should be engaged to assess the structural integrity of the property and to make suggestions concerning any remedial measures necessary. The problem is not an isolated one as other dwellings in Ellison Street show signs of cracking (Jennings, 1975). The footpaths are distorted and distressed indicating that the problem affects a relatively large area.

## REFERENCE

JENNINGS, I.B. 1975. Damage to a house at Ellison Street, Punchbowl, Launceston. *Unpubl.Rep.Dep.Mines Tasm.* 1975/18.

[5 September 1986]