



ADVISORY NOTICE

BUILDING

18/06

Advisory Notices are issued to assist in the interpretation of the Development Act 1993

December 2006

PROFESSIONAL PRACTICE:

Roof trusses – buildings at risk

BACKGROUND

Independent research work by structural engineer John Goldfinch, of Koukourou Engineers, has indicated a disturbing number of failures where the nail-plates have worked their way out of the timber members such that they are no longer effective as load carrying components in a roof truss.

These instances are predominantly associated with a particular form of nail-plate that is no longer produced. This point provides comfort that new buildings are not involved, and that it only applies to existing buildings constructed pre-1997. Even then, not all pre-1997 buildings with nail-plate roof trusses will be affected but it is impossible to know which ones have the particular nail-plate that could be susceptible to failure.

This Advisory Notice should be read in conjunction with Advisory Notice 17/06.

DISCUSSION

While some existing buildings will be dealt with through development applications for alterations and additions, using Section 53A of the Development Act (refer Advisory Notice 17/06), this will still leave a substantial number of buildings potentially at risk.

Councils need to be aware of the situation and have processes in place for responding to community concerns.

Buildings at risk

Buildings having the following characteristics have been identified as being particularly vulnerable:

- Buildings constructed in the range 1970 – 1997, and
- Roof framing consists of prefabricated timber trusses, and
- Clear span buildings over large open public spaces such as community halls, libraries, churches, club/restaurant/hotel dining rooms, and
- The covering is roof tiles.

Where there are buildings in a council area that are known to have **all** of these characteristics then there is sufficient reason to believe that there may be a risk to public safety and it is recommended that an

inspection be undertaken of the roof framing.

Under Section 19 of the Development Act, officers who are authorised under Section 18 have significant powers of entry and inspection where they need to determine whether a building is safe. The circumstances outlined above provide sufficient reason to warrant such an inspection.

Where buildings have a high degree of partition walling (such as in houses and offices), the risk of catastrophic failure is not as great as any settlement of the trusses will bear on the partition walls. While these buildings do not have the same level of risk as public buildings with large open spans, any signs of movement will still warrant closer examination of the roof framing but this should be arranged by the building owner.

It is suggested that councils include in their inspection policies a section that deals with this matter and covers the following points:

- The identification and prioritisation of buildings potentially at significant risk. Local knowledge of high population buildings (Scout/community halls, churches, schools, commercial retail etc) and the Valuer General's coding (identifies buildings with tiled roofs) are a good start for identifying buildings.
- A program for inspecting high risk buildings in a convenient but timely manner.

In addition councils should consider providing advice to high risk building owners so that they are able to take proactive steps to safeguard their properties – an explanatory leaflet suitable for community awareness is available from Planning SA and a simple on-line check can be accessed on the Planning SA website. The check enables building owners to, by answering a few questions, determine relatively easily what action they should take (if any) regarding the roof of their building.

Section 69 also provides the ability for an authorised officer to issue an emergency order if there is an immediate need to make the building safe. Such orders do not need to prescribe the full rectification of the roof trusses; they only need to prescribe whatever is necessary to make the building safe, such as the installation of temporary props (under the direction of a structural engineer) to support the roof.

As councils become aware of affected buildings in their area, either through building owners taking proactive action or through council inspections, it is requested that Planning SA be advised so that the extent of buildings requiring remedial work can be monitored.

What to look for

When inspecting existing buildings, council officers should be vigilant in looking for signs of distress in the roof framing, in particular:

- In the rooms under the roof, dimpling of the ceiling at the cornices can indicate that settlement of a number of the roof trusses relative to the wall has occurred. Also, sagging of the ceiling along a straight line can indicate that one truss has settled.
- In the roof space, the nail plate connectors should be sitting tight against the timber. If there is a

gap between a plate and the timber then there is a potential problem and you will need to get a structural engineer to have a look at it. It is also advisable to have a close look at the heel joint where the trusses are sitting on the supporting wall. This is normally the lowest point in the roof space so it can be quite difficult to get to but it is also the most important point for stability of the roof.

- Girder trusses should be paid particular attention because of the larger roof area that they are supporting.

Abnormal applied loads, such as air conditioning units and large water pipes may also give rise to problems if the trusses were not designed to carry such loads.

Further information

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