

Defect Action Sheet (Site)

June 1982

Pitched roofs: thermal insulation near the eaves

FAILURE: Condensation and mould growth in the house and the roof space; rot in timber and corrosion of steel fixings in the roof space

DEFECT: Insulation not covering the ceiling at the edges, or pushed into the eaves so that eaves ventilation is blocked

On a recent BRE survey of new low-rise traditional housing, ceiling insulation was frequently found to be missing at the edges or to be pushed into the eaves so that the eaves ventilation was blocked (Figure 1).

Lack of care in placing the insulation in the eaves can have serious consequences.

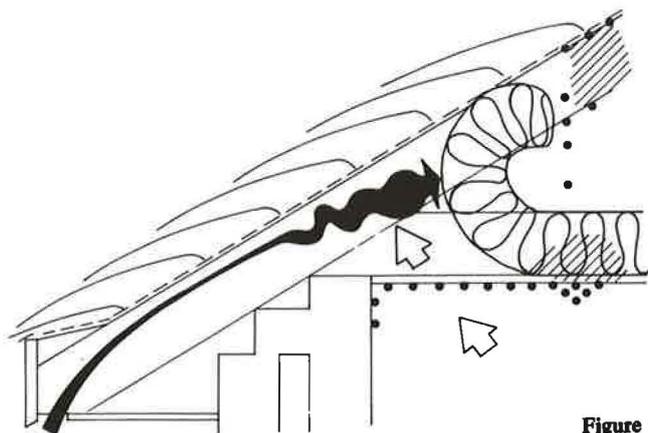


Figure 1

If the *insulation is not carried into the eaves*, (Figure 2) the edges of the ceiling will not be insulated and a 'cold bridge' will result which may lead to *condensation and mould growth* in the room below at the junction of wall and ceiling.

If the *insulation is pushed or blown too far into the eaves*, (Figure 3) or *left partially unrolled* (Figure 1) *cross ventilation* provided at the eaves may be *reduced or totally blocked*. Cross ventilation is vital. Without it water vapour from within the house can cause *mould growth in the roof*, high moisture content in roof timbers which can lead to *rot*, and *corrosion* of steel fixings, nails and connectors in the roof space.

It can also cause *condensation* which may wet the insulation, reducing its effectiveness and *damaging ceilings and decoration*.

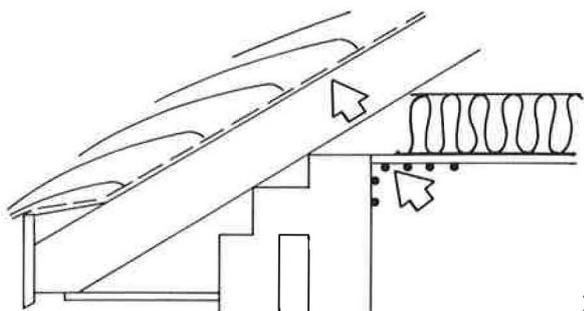


Figure 2

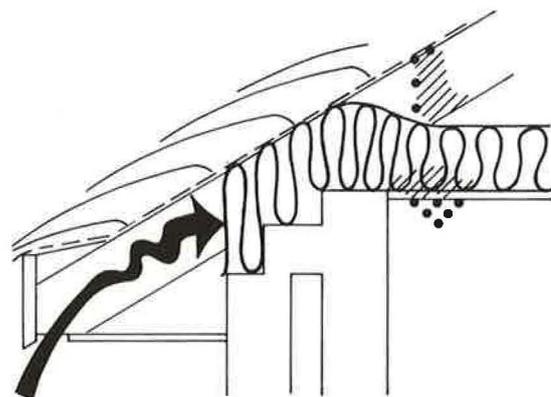


Figure 3

PREVENTION

Principle — Full coverage of insulation with unobstructed ventilation

Practice

- Take care at the eaves that the insulation covers the whole ceiling (A, Figure 4).
- Ensure that the insulation is laid up to stops or spacers which should have been provided for roof ventilation (B, Figure 4).
- When the insulation has been laid, check that the cross-ventilation provided for in the design is not blocked in any way (C, Figure 4).

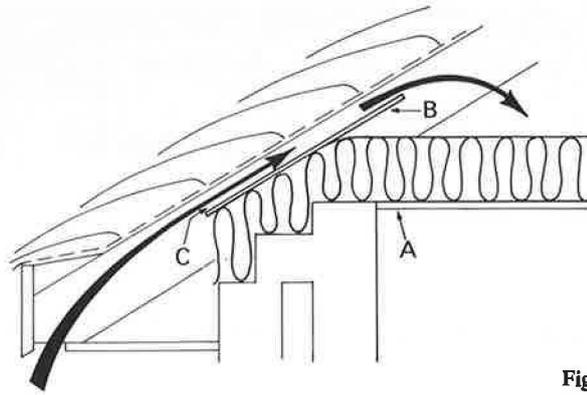


Figure 4

Defect Action Sheets are produced by the BRE Defects Prevention Unit. A Technical Committee including representatives appointed by DOE and the Local Authority Associations advises upon the general approach to and priorities for the Unit's work. Defect Action Sheets are intended to remind and inform designers and site supervisory staff of ways of avoiding some of the most troublesome defects which have beset Local Authority housing in recent years. The advice is based on the most authoritative information available at the date of issue and frequently also on field assessments, but it is inevitably generalised and users should ensure that it is relevant to the specific circumstances in which they seek to apply it.

For enquiries arising from this sheet please contact the DPU at the address overleaf.

Local Authority users may be able to obtain further copies of this sheet, copies of the cumulative index and copies of other sheets in this series from the nominated contact point in their authority. Alternatively, requests can be made direct to the DPU and should be sent to the address overleaf.

This sheet should be filed with other Defect Action Sheets in the order indicated by the cumulative index.

© Crown copyright 1982, Building Research Establishment Department of the Environment.