

Reinforced Autoclaved Aerated Concrete (RAAC) – concerns are growing over this widely used material

It has been [widely reported](#) in the news, days ahead of schools returning, that more than 100 schools, colleges and nurseries have been informed to shut due to concerns over concrete which may be prone to collapse until safety works are completed.

School buildings identified to have been constructed with Reinforced Autoclaved Aerated Concrete (RAAC) must introduce new safety measures, and thousands of children face disruption.

This follows a recent [ITV News investigation](#), which raised concern about buildings that have been constructed using Reinforced Autoclaved Aerated Concrete (RAAC). But what is RAAC, what risks does it pose, and what are the implications for those buildings affected?

What is RAAC?

Reinforced Autoclaved Aerated Concrete (RAAC) is a lightweight construction material that was widely used in the UK from the 1950s through to the mid-1990s.

Despite its popularity, RAAC is raising concerns among building professionals due to its inherent weaknesses and the increasing risk of failure in aging structures.

RAAC is characterised by its 'bubbly' appearance and is substantially different from traditional reinforced concrete. Used primarily in flat and pitched roofs as roof planks, RAAC can also be found in walls and floors of public buildings like schools, colleges, and hospitals.

Unlike traditional concrete, RAAC is much weaker, with an estimated lifespan of just 30 years. With its low compressive strength, porous nature, and reduced stiffness characteristics, RAAC panels are far less robust, leading to an industry-wide review of its usage.

Identifying RAAC

Identifying RAAC is often complicated as it might be concealed by other building finishes or painted over. Several methods, such as considering the age of the building, reviewing construction plans, visual inspection, or engaging qualified professionals, can help detect RAAC.

From a cross sectional perspective, RAAC is easily identifiable, not least because of its 'bubbly' appearance, as can be seen in the following image:



Cross sectional image of RAAC

Photo source: BRE, Information Paper, Dec 1996

RAAC panels:

- Are usually 450mm x 600mm wide and 2.4m -3m long.
- Typically have a slight chamfer to each edge.
- Colour varies from white to pale grey.
- In a roof can be more easily identified from the underside.

An appropriately qualified building surveyor or structural engineer should be engaged to assist with identifying RAAC, and any imminent risk of failure.

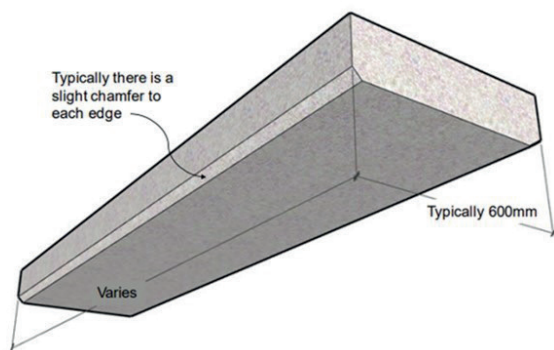


Photo source: UK Department of Education RAAC, Dec 2022

Why is RAAC a Concern?

In the late 1990s and early 2000s, the Building Research Establishment (BRE) investigated RAAC's performance, initially believing that early warning signs would appear before failure. However, the alarming reality is that RAAC planks can fail without warning, escalating the associated risks.

RAAC's failure can be sudden and catastrophic, as this photograph of a collapse in a school classroom shows, the classroom was not in use at the time:



Photo source: LGA, RAAC Article 2023

“In my view we need to be thinking about RAAC much as we do with asbestos - if we become aware of its presence, we should raise the alarm so that appropriate action is taken. There is an increasing risk of failure as the material continues to deteriorate, often exacerbated by deterioration of flat roof coverings and water ingress and/or imposed roof loadings from snow or heavy rainfall etc”.

– Karl Evans - Loss Adjuster / Chartered Building Surveyor (Major Loss) / Subsidence Lead

Taking Action Against RAAC

The concerns about the sudden failure of RAAC panels, especially in schools and public buildings, have led to heightened scrutiny and measures to address the problem.

Government and industry bodies have taken several steps:

- In December 2018, awareness campaigns were conducted by the Department for Education (DfE) and the Local Government Association (LGA).
- An alert was raised by the Standing Committee on Structural Safety (SCOSS) in May 2019.
- The DfE has been actively educating members on the risks associated with RAAC.
- Recently, in December 2022, the DfE issued a call to action for schools to assess the presence of RAAC.

[Reinforced autoclaved aerated concrete: estates guidance - GOV.UK](#)

Insurance Implications of RAAC

The presence of RAAC poses unique challenges in the context of insurance coverage. Building insurance policies may cover damage caused by sudden and unforeseen events. However, most policies are not designed to cover wear and tear or construction defects.

If RAAC failure leads to sudden damage to other parts of the building, the policy may respond to the resultant damage only. Still, policy wording and exclusions will need to be carefully reviewed.

Conclusion

Reinforced Autoclaved Aerated Concrete (RAAC) represents a legacy issue in the UK's construction landscape, particularly in public buildings constructed during the mid-20th century. Its inherent weaknesses, coupled with its aging nature, have led to a pressing need to reassess its presence in existing structures.

Government bodies, building professionals, and insurance providers must work together to identify, monitor, and mitigate the risks associated with RAAC. With the knowledge that RAAC can fail without warning, the need for a comprehensive response is more urgent than ever.

Given the potential for sudden and catastrophic failure, a proactive approach to identifying and managing RAAC is vital. This requires the collective effort of government, the construction industry, and property owners to safeguard the integrity of buildings and the safety of their occupants.

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