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REINFORCED AUTOCLAVED AERATED CONCRETE – WHAT IT IS, WHY IT MATTERS AND HOW TO DEAL WITH IT

WHAT IS IT?

Reinforced Autoclaved Aerated Concrete (RAAC) is a form of lightweight steel reinforced pre-cast concrete panel used in construction from the 1950s to the mid-1990s, commonly used in roof decks. Due to the way it was made, it is much weaker than traditional concrete and is estimated to have a useful life of around 30 years. Its production in the UK was stopped in 1982 but will still be found in many buildings constructed during this period.

The planks are rectangular in shape and can vary in width from 300 mm to 750 mm, with spans up to 6 m and thicknesses of 100 – 250 mm and are often off-white or grey in colour. Often the panels will be concealed with ceiling finishes.

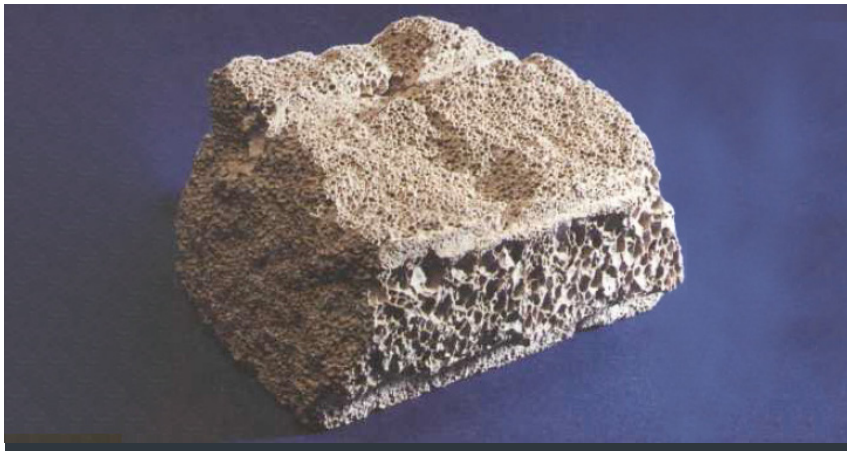

Figure 1. Sample of RAAC

WHY IS IT A PROBLEM?

Following decades of use in the industry it became apparent that RAAC contains a lower compressive and tensile strength than normal reinforced concrete. This is exacerbated by other factors such as external loading from mechanical plant and water ingress exacerbated by the porous nature of the concrete increasing the rate of corrosion of the steel reinforcement. There has been some sudden catastrophic failures with little prior warning – a primary school roof collapsed in 2018.

Property owners need to identify its presence and manage the risk, much like we already do with other deleterious material such as asbestos and combustible cladding, then undertake remedial works where needed to prevent failure.

Figure 2. Exposed RAAC panels.

Figure 3. A roof slab collapse constructed with RAAC

WHAT CAN BE DONE ABOUT IT?

If you own, occupy or work with properties that were constructed in the 1950s to mid-1990s you should get a building surveyor or structural engineer to inspect the property and consider the likely presence of RAAC panels. Further opening up and intrusive works may be required beyond an initial visual survey in order to the confirm the presence of RAAC. If RAAC is present, then remedial works to remove and replace the panels will have to be carefully planned and carried out.

Recent industry guidance sets out a recommended five stage stepwise process to help identify and narrow down the risk of RAAC being present in buildings. The steps range from an initial data collection process to review information available on the building(s), all the way to implementing a management and remediation strategy.

It is important that landlords, occupiers, property managers and all those who work with high risk buildings (i.e. schools, colleges, hospitals and other public buildings) understand the risk posed by RAAC and seek advice to undertake an appropriately detailed review of their properties.

There is a government initiative to help schools identify the presence of RAAC and take appropriate action. Not bothering to check and undertake due diligence will not be an excuse if a catastrophe occurs. As such, professional advice on the matter should be sought.

WHO SHOULD BE AWARE OF IT?

All of us. The issue is particularly relevant for the education industry including schools, colleges and universities as well as hospitals and other public buildings where the panels were commonly used in construction. However, the panels are understood to exist in a wide cross section of buildings. Consequently, all landlords, occupiers and property managers should be aware of the issue and establish if the panels are used in their properties.

The presence of RAAC is also relevant for rental and capital valuations and their limitations. It would also impact on the sale and purchase transactions if discovered.

GERALD EVE TRACK RECORD

Gerald Eve have a specialist Building Consultancy team with experience of portfolio surveys and risk management for deleterious materials. This includes working with a local authority to to identify the likely presence of RAAC across its school portfolio. Gerald Eve have implemented a robust risk assessment and inspection procedure for identifying RAAC across its schools portfolio consisting of over thirty eight schools. The methodology allows for quickly and efficiently identifying high, medium and low risk buildings via a desktop data analysis matrix. The second stage stage of the assessment is a physical inspection to further examine the risk level and propose remedial works where necessary whilst working with multiple stakeholder groups.