

**SAFETY ISSUES REGARDING REINFORCED
AUTOCLAVED AERATED CONCRETE (RAAC)****REPORT OF THE CHIEF FIRE OFFICER****For Approval****1. PURPOSE OF REPORT**

- 1.1 To provide Members with an update on safety issues regarding Reinforced Autoclaved Aerated Concrete (RAAC).

2. RECOMMENDATIONS

- 2.1 That Members note the current position and action taken regarding the potential for RAAC in the wider community and the Fire Authority's estate.
- 2.2 That Members receive further updates regarding RAAC status in the wider community and in respect of the Authority's primary estate once survey results are known.

3. BACKGROUND

- 3.1 The historic use of RAAC is currently the subject of examination within the Cabinet Office from a safety perspective. It is a lightweight form of precast concrete and was used in the construction of some public sector buildings in the UK between the 1950s and the 1990s. RAAC is now life-expired and liable to collapse.
- 3.2 RAAC is primarily found in flat roofing, and occasionally in floors and walls. It is less durable than traditional concrete and there have been problems as a result; this could have significant safety consequences. The Local Government Association (LGA), for example, is advising its members to check as a matter of urgency whether any buildings in their estates have roofs, floors, cladding, or walls made of RAAC.

4. RAAC RISK ASSESSMENT

- 4.1 In February 2022 the Standing Committee on Structural Safety (SCOSS) published its findings highlighting the safety concerns associated with RAAC in the built environment, including the risk of structural failure.

- 4.2 RAAC is an emerging issue, and the level of risk is likely to change over time as it remains in place beyond its expected service life, however the available information identifies that there is a risk of sudden full or partial collapse in buildings constructed with RAAC. It is, therefore, critical that operational fire crews are aware of a building where RAAC has been located or suspected so that they can consider it as part of the operational risk assessment for any incident that may occur. This would still be applicable if the building has been decanted and is unoccupied.
- 4.3 Even where building owners have confirmed that the presence of RAAC does not give rise to any immediate risks – i.e., no remediation or mitigation measures are necessary – operational crews should still be aware. Furthermore, any assessment of risk associated with RAAC, will not have considered the effects of fire or firefighting activity, and how it could increase the likelihood of structural failure (for example, additional loading associated with the application and pooling of firefighting water).
- 4.4 Although there has been little research into how this material would behave if involved in fire, it is thought that thermal radiation may cause it to collapse. Likewise, if water is applied this may trigger a structural collapse.
- 4.5 The greatest risk to FRS associated with RAAC remains with operational crews who may respond to an incident at a building that has been deemed structurally unsafe. Where Protection teams become aware of the presence of RAAC in buildings, this should be communicated to their operational risk department.

5. CLEVELAND FIRE BRIGADE RESPONSE

- 5.1 In response to the associated risks with the presence of RAAC across buildings in the Authority's area, and the recent Government announcement on specific school buildings now identified with RAAC in their construction, for example Kader Academy, Middlesbrough, the Brigade has instigated a plan of activity which includes:
- Collate a risk register of known premises to inform operational emergency response plans (ERPs), and any additional Protection and Prevention activity.
 - Carry out effective familiarisation visits to understand the specific locations of the affected areas within premises, and any other issues associated with the presence of RAAC.
 - Completion of up-to-date site-specific risk information (SSRI) that captures insight gained from familiarisation visits.
 - Robust pre-planning including establishing an informed pre-determined attendance.

5.2 From a **Protection (Building Safety)** perspective, regardless of the structural safety risks and any mitigation measures introduced to manage the risk, Responsible persons (RP's) have an ongoing duty to comply with the Fire Safety Order. Due to the risks associated with RAAC adding further complexities to existing fire safety arrangements, the RP will need to review the fire risk assessment (FRA) to ensure a satisfactory level of fire safety is maintained.

- Where sections of buildings are taken out of use, it will need to be ensured that the means of escape has not been unduly compromised. Where escape routes and fire exits are lost, the means of escape that remains, needs to be suitable for the persons expected to use them. Considerations would include possible creation of dead-ends, excessive travel distances, and redundant signage.
- Where parts of a building can no longer be used, it may be necessary to change how other parts of the building are used to account for the lost space. This could manifest itself as a change of use or an increased occupancy and may need to be addressed by the FRA. Similarly, on larger sites, temporary buildings may be used to restore capacity that has been lost elsewhere.
- Situations may occur whereby premises are largely decanted but continue to be occupied with minimal personnel. The fire safety arrangements may need to be amended to reflect very low occupancies in otherwise large buildings.
- Occupants should be informed of any changes in the fire safety arrangements or procedures to the extent that is appropriate. It may be necessary to carry out additional training.
- Where specific emergency procedures are implemented to support structural safety concerns, it should be ensured that they do not conflict with the existing procedures in the event of a fire to the extent that they could cause confusion and put people at risk.

5.3 Note on schools – although the above would be applicable to all RAAC affected buildings, there are additional considerations that are particularly relevant to schools:

- Schools/buildings taking on pupils from other RAAC-affected schools/buildings will also need to review their fire risk assessment. With a higher number of pupils, and potentially different occupancy characteristics, these schools will need to ensure that the fire safety measures and arrangements remain suitable.
- Regardless of whether a school is continuing to operate with mitigation measures in place or supporting other schools by accommodating their staff and pupils, it is recommended that fire drills are undertaken as soon as possible to identify any potential unexpected consequences resulting from changes in building layout and occupancy which may need to be addressed.

- 5.4 CFB will complete a fire safety audit of any premises where the presence of RAAC is likely to have had significant impact on the existing fire safety arrangements.
- 5.5 In some instances, the concerns regarding RAAC may be severe enough to warrant complete closure of a building. Although the FSO will continue to apply to any unoccupied non-domestic premises, there will no longer be any relevant persons on the premises. From the perspective of the RP, the risk to life in these buildings will be very low. However, where a building is to remain vacant due to structural safety issues, it will be exposed to an increased risk of arson and security provisions should be reviewed.
- 5.6 From a **Prevention (Community Safety)** perspective it is important to provide prevention advice to those in affected buildings or who have moved to new premises. This could include:
- Advice to school premises that are vacant due to structural issues, to ensure that they are adequately secured to prevent the risk of arson or deliberate fires.
 - Informing Schools Education (SE) teams who attend visits to those schools affected. If SE teams are visiting schools and they identify any potential hazards e.g. higher number of pupils or fire safety measures not in place, this information should be referred to your Protection team.
 - Fire drills early in the school term due to new intakes of pupils being unfamiliar with the school. This is even more important to identify any potential unexpected consequences resulting from changes in building occupancy or moves to new locations which may need to be addressed. It will be important to consider vulnerable groups within this planning.

6. CFA ESTATE

- 6.1 The Fire Authority's estate consists of sixteen primary properties. Significant investment has been made by the Authority into rebuilding and refurbishing its estate over the past twelve years, which has seen six buildings rebuilt and a further eight refurbished. The final two buildings are due for refurbishment in the coming years.
- 6.2 A further property belonging to the Fire Authority is the old Learning and Development building at Grangetown for which a 40-year lease was agreed with Cleveland Police in 2018. Under the terms of the lease, the Police have undertaken their own refurbishment and are responsible for all repairs, maintenance, and upkeep of the building until 2058. The building is therefore outside of the scope of this report.
- 6.3 Six of the Authority's sixteen primary properties have been rebuilt in recent years and have not used RAAC in their construction. No further action is required at these sites.

	Property	Constructed Date	Refurbished Date	RAAC Status
1	Training & Administration Hub	2016	n/a	none
2	Technical Hub	2016	n/a	none
3	Middlesbrough Fire Station	2015	n/a	none
4	Grangetown Fire Station	2017	n/a	none
5	Thornaby Fire Station	2018	n/a	none
6	Headland Fire Station	2014	n/a	none

- 6.4 The remaining ten properties, which are all fire stations, were originally constructed between 1952 and 1991. Due to the dates aligning with the period of RAAC use, these sites are considered to have the potential for RAAC to be present.

	Property	Constructed Date	Refurbished Date	RAAC Status
1	Stockton Fire Station	1965	2020	potential
2	Redcar Fire Station	1962	2011	potential
3	Billingham Fire Station	1972	2012	potential
4	Coulby Newham Fire Station	1985	<i>due 2025</i>	potential
5	Hartlepool Fire Station	1960	2017	potential
6	Yarm Fire Station	1991	<i>due 2026</i>	potential
7	Guisborough Fire Station	1962	2019	potential
8	Saltburn Fire Station	1968	2015	potential
9	Skelton Fire Station	1952	2015	potential
10	Loftus Fire Station	1952	2019	potential

7. **REMEDIAL ACTIONS**

- 7.1 Two stages of survey are required to accurately determine whether RAAC is present in any of these fire stations. The first stage, currently in progress, consists of visual surveys undertaken by the Authority's appointed technical consultants who led on the rebuild and refurbishment projects, Bradshaw Gass and Hope. A survey report will be provided to the Authority by the end of September 2023 stating whether each of fire stations are clear of RAAC or whether its presence is visually suspected.

- 7.2 The second stage of survey, to accurately confirm whether RAAC is present, is more complex and requires an invasive process whereby core samples of concrete are taken away for analysis. This survey will be commissioned for any fire station where RAAC is suspected following the visual inspection.
- 7.3 If RAAC is officially confirmed to be present in any building, then a remedial plan will be actioned by the Authority.
- 7.4 The Cabinet Office has commissioned Government departments to engage with their relevant stakeholders. The Home Office is therefore engaging with Chief Fire Officers regarding safety issues associated with RAAC. A submission has been made to the Home Office listing all the Authority's primary properties and their current RAAC status. This information will be updated and resubmitted once survey results are known.

8. CONCLUSION

- 8.1 A further update will be provided to members regarding RAAC status of the wider community risk and the Authority's primary properties once survey results are known.

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