

**Risk Assessment Form (RAAC)**

|                                       |  |                    |                                |
|---------------------------------------|--|--------------------|--------------------------------|
| Space covered by this Risk Assessment | 01.030 - Science Block D – Engineering hall & Mezzanine areas  | Date of assessment | 24 <sup>th</sup> November 2023 |
| Department                            | Warwick Estates (Landlord)   | Date review due    | 24 <sup>th</sup> December 2023 |
| Description of Task/Process           | To facilitate the safe access into Science Block D – Engineering hall & Mezzanine areas following identification of RAAC roof slab construction: (Areas covered by Appendix 2)<br><br>To be used in conjunction with relevant departmental / local risk assessments / operational arrangements |                    |                                |
| Departmental Contacts                 | Adrian Seymour - Technical and Facilities Manager  |                    |                                |
| Assessment carried out by             | Neil Slattery (Assurance and Risk Officer)<br>Duncan Stiles (Head of Assurance, Risk and Property)   |                    |                                |

**Additional information**

**Emergency Response:**

- Establish communication protocols and emergency response procedures.
- Keep emergency contact information readily available.

**Inspections and Maintenance:**

- Regularly inspect the RAAC roof for signs of damage or degradation.
- Implement a maintenance schedule to address any identified issues promptly.

**Review and Monitoring:**

- Regularly review and update the risk assessment as conditions change or new hazards emerge.
- Monitor the effectiveness of control measures and adjust them as needed.

**Record Keeping:**

- Maintain records of risk assessments, training, inspections, and incident reports.

**Communication:**

- Establish clear lines of communication among all parties involved in the project, including workers, supervisors, and emergency responders.

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| Potential RAAC hazard identified, location and how they may cause harm   | Who may be at Risk?  | Existing Control Measures (See Appendix 1)   | Current Risk Level* (Critical, High, Medium, Low) | What additional Control Measures are required? (See Appendix 1)   | Action required by whom & by when?   | Final Risk Level* (Critical, High, Medium, Low) |
|--|--|--|---|---|--|---|
| <p>Science Block D (Engineering Hall and Mezzanine offices) has RAAC roof panels</p> <p>Structural Integrity:</p> <p>Potential collapse or damage to the RAAC roof due to age, weathering, or structural weaknesses.</p> <p>Risk of falling debris from the roof.</p> <p>Weather conditions (e.g., rain, snow)</p> | <p>Staff (including: Technical, Campus Cleaning Services, waste &amp; recycling, Maintenance (core), Maintenance (Zone) etc.</p> <p>Students</p> <p>Contractors (External / <a href="#">Framework</a>)</p> <p>Visitors</p> | <p>Structural assessment carried out by a qualified engineer as per M44470-JNP-XX-XX-RP-S-1001-P02 Baseline Visual Inspection Report.</p> <p>Guidance (GUIDE-DFE-XX-XX-T-X-9002-Reinforced_Autoclaved_Aerated_Concrete_Identification_Guidance-A-C02) provided on identifying material condition and RAAC awareness to estates Assurance risk and property / Estates Information and systems teams.</p> <p>Weekly weather condition reports are issued via email by Grounds and Gardening team to RAAC action group representatives to review space usage and advise if adverse conditions could affect safety.</p> <p>Daily visual inspections are carried out by engineering operational teams to ensure all access and egress routes are clear of obstructions.</p> <p>Adequate lighting is present throughout for safe movement within the building.</p> <p>Approved suppliers (<a href="#">Link to list</a>) are provided red line drawings indicating the exact location of RAAC by the contracts manager prior to works commencing on-site by the contracts manager to include within their POWRA (Point of work risk assessment)</p> | <p>MEDIUM</p>                                     | <p>All staff and contractors who perform regular or non-regular functions, to complete a briefing (Either by senior manager trained on RAAC or suitable competent person) – to include the following advice: Assess space before entering for debris, dampness (water ingress), any changes, any adverse loading. To escalate to university contact or line manager – to include limitations of access and exit regarding fire safety.</p> <p>Line managers to keep a live up-to-date log of who has received briefing.</p> | <p>Departmental Manager / Direct Line Manager / Contract manager (ongoing)</p> <p>Departmental Manager / Direct Line Manager (ongoing)</p> | <p>LOW</p>                                      |

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|--|---------------------|--|---|---|--|---|
| affecting roof stability   |                     | <p>Permit procedure in place to control works being undertaken to roof managed through the Estates Permit Office.</p> <p>External roof inspections carried out to assess the current weatherproofing of roofs where RAAC panelling is present beneath.</p> <p>Ongoing PPM tasks carried out by maintenance department to proactively prevent issues related to rain-water pooling, leaking roof seals, blocked guttering and drains etc.</p> |   | <p>RAAC Action group to continuously review additional control measures required as advised by qualified/competent structural engineer using appendix 1 as guidance.</p> <p>Weekly condition monitoring to be carried out by externally appointed structural engineer. Records of visual inspections filed on sharepoint for review by RAAC action group. Remediation actions to be reviewed against Risk matrix*</p> | <p>RAAC action group (ongoing)</p> <p>By externally appointed consultant – Managed through Estates / RAAC action group. (Weekly)</p> |   |


\*See Risk Matrix below

**Risk Matrix** (Taken from the Institute of Structural Engineers publication ‘Reinforced Autoclaved Aerated Concrete (RAAC) Investigation and Assessment – Further Guidance, April 2023’)

| Assessment category | Risk category |  |
|---------------------|---------------|--|
| Red                 | Critical risk | Requires urgent remedial works which may include taking out of use or temporary propping to allow the safe ongoing use of a building. Depending on the extent, this may be part or all of the building.<br><br>Combined with awareness campaign for occupants including exclusion zones. |
|                     | High risk     | Requires remedial action as soon as possible.<br><br>Combined with awareness campaign for occupants, which may include exclusion zones, signage, loading restrictions and the need to report changes of condition, eg, water leaks, debris, change in loading, etc.                      |
| Amber               | Medium risk   | Requires inspection and assessment on a regular basis, eg, annually.<br><br>Combined with awareness campaign for occupants, which may include signage, loading restrictions and the need to report changes of condition, eg, water leaks, debris, etc.                                   |
| Green               | Low risk      | Requires inspection and assessment occasionally, say <b>three</b> year period depending on condition.<br><br>Combined with awareness campaign for occupants, which may include signage, loading restrictions and the need to report changes of condition, eg, water leaks, debris, etc.  |

|   |            |
|---|------------|
| <b>Overall Final Risk Rating</b><br>(Highest level in final column above) | <b>LOW</b> |
|---|------------|

|   |  |
|---|--|
| <b>Additional Comments from Risk Assessor</b> |  |
|---|--|

|             |   |
|-------------|---|
| Approved By |  |
| Date        | 1/12/2023   |

|          |  |
|----------|--|
| Position | Development & Services Director, Estates |
|----------|--|

Please print a copy, sign it and keep for your records

**Document History**

| Version | Date       | Reviewer | Comments |
|---------|------------|----------|----------|
| 1       | 24-11-2023 |          |          |
|         |            |          |          |
|         |            |          |          |

**Appendix 1 Risk Control Measures** (Taken from the Institute of Structural Engineers publication 'Reinforced Autoclaved Aerated Concrete (RAAC) Investigation and Assessment – Further Guidance, April 2023')

### Remediation

Remedial action should be undertaken on any panels assessed to be Red (High or Critical risk) condition, with planned remedial action determined for Amber (Medium risk) condition panels. In some instances, it may be appropriate to apply remedial action only to the affected panels. Alternatively, depending on the remedial works, this may be applied to all panels within the building being assessed. The response to Red (High or Critical risk) panels should be considered as time dependent. In some instances, immediate exclusion zones or the introduction of temporary propping to allow the safe ongoing use of a building may be recommended. In all instances, the ongoing use of buildings with RAAC panels identified to be in a Red (High or Critical risk) category should be risk assessed. Engineers undertaking the risk assessments should be aware of the approach being developed for the management of high-risk buildings under the Building Safety Act. Remediation strategies may include:

- The addition of secondary supports or beams at the end bearing to provide an increased effective bearing length. This is applicable to panels with short bearings length and misplaced transverse anchorage bars. This strategy will not be suitable for cut panels with no transverse anchorage reinforcement
- Positive remedial supports to actively take the loading from the panels. This could include the addition of new timber or lightweight structures to support the panels directly
- Passive fail safe supports to mitigate catastrophic failure of the panels if a panel was to fail. Such as a secondary structure designed to support the panels
- Removal of individual panels and replacement with an alternative lightweight solution • Entire roof replacement

### Management Strategy

A management strategy should be applied to Amber (Medium risk) and Green (Low risk) RAAC panels. This should be developed by the building occupant/owner. It is expected that panels presenting a Low or Medium risk will deteriorate over time, but precise details of the mechanism that causes this, or the rate at which it will occur is not yet known. The management strategy should consider the current condition of the RAAC panels and include:

- Monitoring plans for RAAC panels and inspection regime
- Risk assessment details • Areas for proposed future remediation
- The assumption on degradation of RAAC panels that have informed the plans – this should be informed by the structural engineer, based on site conditions
- The management strategy should also include plans for reducing the risks associated with RAAC panels

These should include plans for limiting:

- o Applied operational loads, for example no-walk zones on RAAC roofs, maintaining roof drainage and removal of ponding water
- o Applied fixed loads, for example, restricting new or removal of existing building services equipment
- o Durability risks, for example reducing humidity in plant or kitchen spaces, re-roofing including insulation laid to falls

An awareness campaign should be implemented so that all occupants are aware of the concerns about RAAC. This should provide reassurance that measures are being undertaken, but also help involve occupants in the management. Occupants should be encouraged to notify the responsible person if conditions change, for example, if leaks are detected, debris is found, or adverse loading noted.



Appendix 2: Area where RAAC is present (within red line)

