

Dewsbury Sports Centre – Condition Assessment – December 2023

Overview

Dewsbury Sports Centre comprises two large separate buildings linked by an enclosed link bridge with lift facilities. The “wet side” was constructed in the early 1970s and contains a main entrance, changing areas, jacuzzi / spa, large and small swimming pool, viewing area and plant room over three floors. The “dry side” was added in the early 1980s comprising a large sports hall, gym, three studios, physio and massage spaces, changing rooms and plant areas. The two buildings are connected by the previously mentioned link bridge, which is accessed primarily through the wet side main entrance.

Reinforced Autoclaved Aerated Concrete (RAAC)

RAAC is a lightweight, precast ‘bubbly’ form of concrete commonly used in construction between the 1950s and mid-1990s. It is predominantly found as precast panels in roofs (commonly flat roofs, sometimes pitched) and occasionally in floors and walls. RAAC panels are typically 600mm wide with spans up to 6 metres. RAAC panels usually have a chamfer along their edge meaning there is a distinctive V-shaped groove every 600mm in the surface of the roof, floor or wall.

RAAC panels have been subject to a number of safety alerts in recent years, particularly prompted by the sudden failure of RAAC panels in apparent good condition without warning in several schools across the country. It has been recognised that in service performance of RAAC panels can be poor with cracking, excessive deflection, fractures and corrosion common issues detected. In accordance with Local Government Association advice and based upon guidance published by the Institute of Structural Engineers, the Council has been undertaking surveys of all school, corporate and commercial buildings to detect the presence of RAAC.

Dewsbury Sports Centre – Wet Side

In early September 2023, a site inspection of Dewsbury Sports Centre was undertaken by the Council’s Structures team based on a review of photographic and historic drawing evidence. This inspection identified the presence of RAAC roof planks within the entire roof area of the Wet Side building, as illustrated on the attached plans. As a consequence, Structural Surveys Limited (SSL) were commissioned to inspect the building to confirm the extent of the RAAC, which they did.

Due to the presence of suspended ceilings, soffit mounted mechanical and electrical plant and the height of the swimming pool main hall, the phase 2 inspections carried out by the Council and SSL were limited to a visual, non-intrusive survey but this did confirm:

- All flat roof decks are of RAAC panel construction;
- Several panels suffering from distress in the form of excessive deflections, fractures and localised damage;
- Several panels have been modified with voids cut for service installations;
- Some urgent temporary propping works are required to damaged and sagging panels in the plant room;
- As there is evidence of fractures, deflections, damage and alterations to the panels in the majority of the areas identified as containing RAAC, all flat roof areas should be subject to a stage 3 survey comprising full exposure works and a detailed visual inspection completed to all areas with touching distance access.

Attached to this appendix are photos illustrating the presence of RAAC in the wet side and some of the issues detected by the stage 2 survey.

A Stage 3 intrusive survey of the RAAC in Dewsbury Sports Centre wet side would require the expose of the roof structure soffit. This would require the removal of asbestos, ceilings, and soffit mounted electrical and mechanical equipment. Due to the height of the swimming pool roof, the existing pools would need to be drained and a fully designed access scaffold built to enable close up examination of the RAAC panels. Specialist investigation of sample panels would need to be conducted to understand the quality and compliance of the installed panels from an original manufacture and installation quality control point of view, to establish levels of deflection, understand the degree of corrosion and fracture, and assess where service intrusions have impacted on structural stability.

It is estimated that the Stage 3 investigations would **cost around £500K**, with **a further £400k** to replace all the ceilings, mechanical and electrical installations removed to provide an operational service.

Given the height of the swimming pool roof and the aggressive environmental conditions found in swimming pool halls, combined with the damaged panels already identified especially in the plant room, it is likely that areas of propping and further structural support would be required as a minimum and potentially the replacement of the whole roof covering the wet side area. This would be a significant and complex undertaking requiring a full structural design, with **potential costs running to several million pounds**.

Other issues – Wet Side

Although the existing main swimming pool tank is considered structurally stable, it has been leaking for a number of years despite a number of concrete repairs being undertaken. Water leakage occurs through two principal sources:

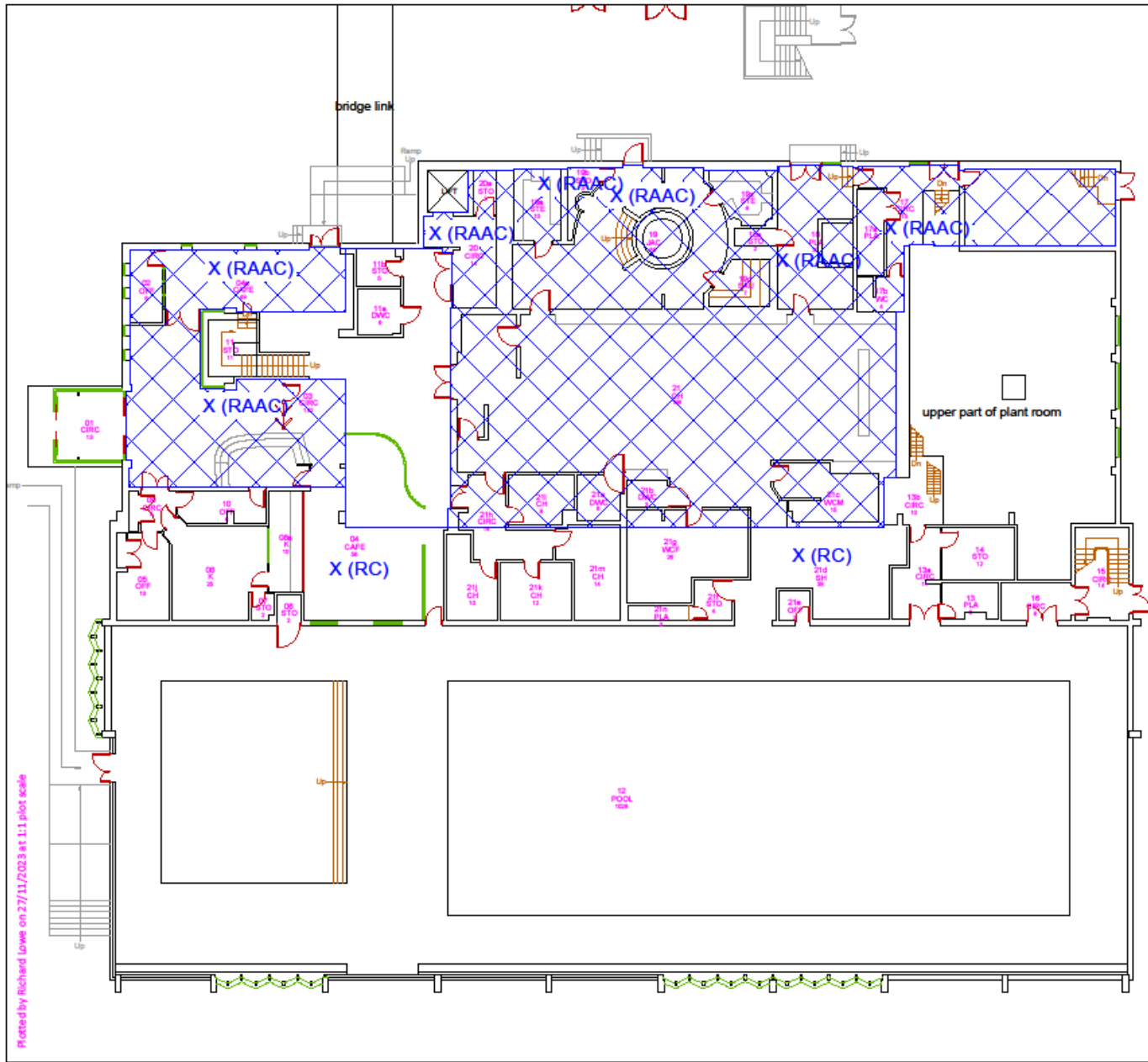
- the overflow water split / flood in the ponding / local sagging points beyond the parameter gully. The accumulated water in the local ponding finds the way to dip down from the movement joint between the pool tank edge support and walkway slab to the maintenance tunnel under the walkway.
- pool tank slab or underground pipework leakage. The leakage is not continuous with regular flow rate and is more likely associated with pipework leakage or other form leakage. The source cannot be confirmed as this would require extensive intrusive excavation to the concrete plinth of the maintenance tunnel.


Given the age of the building, the original pool tank is approaching the end of its design life. Without detailed intrusive testing, the rate of degradation of the pool tank is unknown, though the leaking will cause further degradation of the structure. A detailed feasibility study would be required to identify the significant works that would be required to extend the pool tank life for another 20 years, although this has previously been estimated in the **region of £1.5-£2m** at today's prices.

From an electrical perspective, the infrastructure is generally the original 1970s installation, with some modifications over the years. Due to its age and unsatisfactory condition, a full rewire of the wet side is required, as well as replacement of the obsolete fire alarm and the main electrical panel. This is estimated in the **region of £520K**.

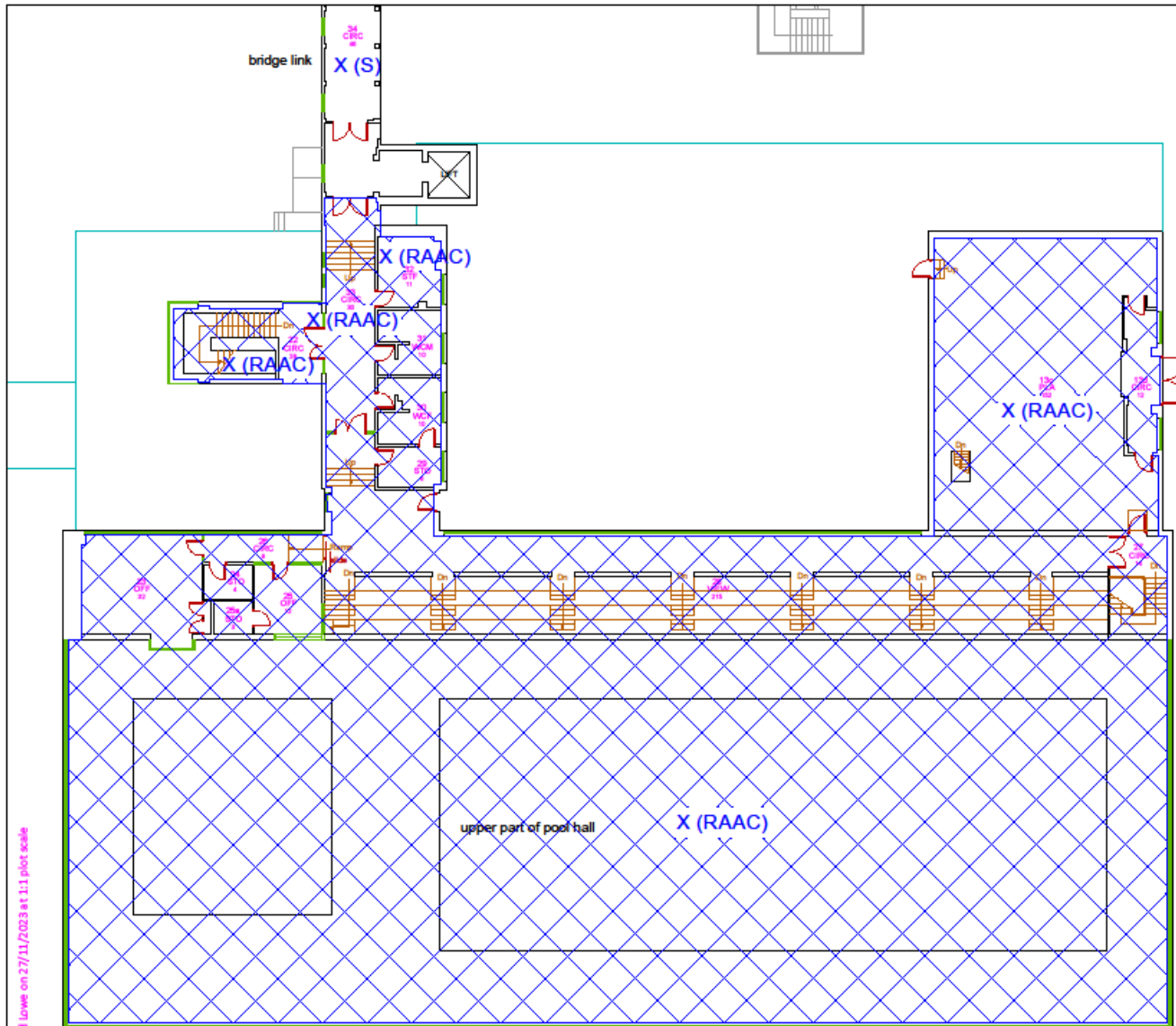
In addition, the mechanical elements of the wet side are reflecting their age, with many parts nearly 50 years old. The complete replacement of the domestic water pipework serving the changing areas and toilets is required. Much of the existing heating distribution pipework within ceiling voids is the original installation and is approaching the end of its useful life. The boiler plant is around 30 years old with problematic and failed parts being replaced in recent years. A complete replacement is required as it approaches the end of its useful life. In total it is estimated that the replacement of the mechanical elements would cost in the **region of £710K**.

In total, works required to extend the useful life of the wet side of Dewsbury Sports Centre by addressing the RAAC, pool tank, mechanical and electrical issues **could exceed £6-7m**.




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Growth & Regeneration Development			
Project			
Reinforced Autoclaved Aerated Concrete (RAAC)			
Sheet Title			
Dewsbury Leisure Centre Wet Side - Ground Floor Confirmed - RAAC			
Drawn	Checked		
RL	Nov 2023	xx/xx/xx	
Project Number	Issue Status		
AM530495	Information		
Drawing Number	Revision	Scale	
MECH-001		NTS	A3
<small>Cad file: c:\bin\mca\kirklees\AM530495\mech-plan-wet-up\kirklees.dwg This drawing is to be read in conjunction with all other drawings and contract documents issued. All dimensions must be checked and verified on site before commencing any works. This drawing is copyright and remains the property of Kirklees Council.</small>			

Dewsbury Leisure Centre - Ground Floor



Plotted by Richard Lowe on 27/11/2023 at 1:1 plot scale

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Project			
Reinforced Autoclaved Aerated Concrete (RAAC)			
Sheet Title			
Dewsbury Leisure Centre Wet Side - First Floor Confirmed - RAAC			
Drawn	Nov 2023	Checked	xx/xx/xx
Project Number	AM530495	Issue Status	
Drawing Number	MECH-001	Revision	Scale
		NTS	A3
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Dewsbury Leisure Centre - First Floor



Photo 001 – Water staining and spalling concrete.



Photo 002 – Damage to RAAC panel.



Photo 003 – Damage to RAAC panel, service installation.



Photo 004 – RAAC resting on suspended ceiling.



Photo 005 – Distressed RAAC panel.



Photo 006 – Sagging RAAC panel.



Photo 007 - Damage to RAAC panel, service installation.



Photo 008 - Damage to RAAC panel.



Photo 009 - Sagging RAAC panel and water ingress.



Photo 010 – Sagging RAAC panel.

Dewsbury Sports Centre – Dry side

Built in the 1980s, the dry side of Dewsbury Sports Centre is in a better condition than its earlier built wet side. Visual inspections by the Council's Structures team and external consultants Structural Surveys Limited has confirmed that there is no RAAC present in the dry side of the building. However, as the main entrance of the Sports Centre and the heating supply for the building is served from the wet side, this makes operation of the dry side difficult without significant investment, which will be subject to a detailed feasibility study as proposed in the cabinet report.

From a condition perspective, the mechanical systems are beginning to create operational difficulties, which reflects their age with wholesale replacement required in the next 5-10 years. Electrically, it is a similar story with much of the underlying infrastructure being the original installation from the mid-1980s, with localised upgrades occurring, for example when the gym was refurbished. Again, it would be likely that wholesale replacement would be required over the next 5-10 years. It is estimated that the mechanical and electrical infrastructure upgrade would be in the region of £700-800K.

Fabric wise, a fire door / compartmentation survey has identified a number of issues that require attention, and the sports hall floor is due for replacement as the current surface finish is near the end of its life. These works have been estimated at around £300K. The flat roof of the dry side is around 20-25 years old and will require renewal in the medium term, which would be around £900K.