

Appendix 2

Technical Briefing On The Condition Of The Former Hermitage Leisure Centre Building



1.0 Introduction

The purpose of this paper is to describe in simple language the current condition of the Hermitage Leisure Centre (HLC) buildings and to outline how this restricts the ease by which any refurbishment; remodelling or re-purposing works can be undertaken.

It is recognised that individual Members of the Council receiving and reviewing this technical report will have varying levels of knowledge of building and construction matters. To assist with understanding, the report has been broken down by commonly recognised building elements e.g. roof, walls, foundations etc. In addition, where possible the report uses photographs to illustrate key observations.

At the time of preparing this report (August 2022) it should be noted that the leisure centre building has been vacant for 6 months and during this period has been secured against vandalism and intruders. Internally electrical systems are energised, but heating is switched off (or to frost protection setting). Water storage tanks have been drained to inhibit bacteriological colonisation (legionella risk).

This report draws heavily on the Condition Survey report produced by CBRE in December 2021 and evidence from the Property Services Team who have managed the building on behalf of the authority since its closure as an operational leisure centre. CBRE are a Chartered Surveying company of national standing.

2.0 Background

The HLC buildings are set within the wider and much larger Hermitage Recreation Grounds. The HLC buildings sit in the northern part of the recreation grounds and are adjacent to the built-up areas of Whitwick village.

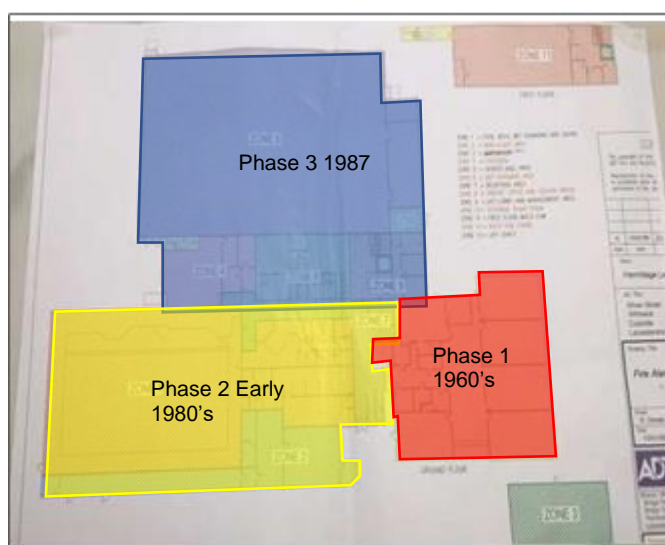


The council's records relating to the construction of Hermitage Leisure Centre are incomplete, however from the documents that are available and visual survey, it is clear that it was not completed in one phase of construction.

It appears that the squash courts were constructed first in the 1960's, with the pool and wetside facilities added in the early 1980's and the dryside sports hall towards the end of that decade (1987). See following image.

The squash courts and bar area are constructed from load bearing masonry under a flat roof covering. The swimming pool uses a concrete frame with brickwork and curtain glazing to create the external envelope, again under a flat roof. The sports hall uses a steel portal frame with part brickwork and part steel sheet clad walling and clad pitched roof.

These represent three distinct approaches to construction and it is likely that compromises were required in order to successfully integrate the three phases of build and create one structure.



The building was not designed initially for modular extension therefore extensive work to integrate the different phases was required . The inverse is likely to be true, to remove any phase would require extensive and expensive remodelling of the remainder.

The youngest parts of HLC were constructed 35 years ago, whilst some parts may be approaching 60 years old.

Whilst our homes are constructed with a life expectancy of around 100 years without (usually) the need for major structural repair, it should be recognised that commercial buildings are not built with such longevity in mind and that many elements of the building envelope may only have a design life of 25 to 30 years.

Regular refurbishment can add additional useful life to a commercial building, however there is no evidence of any significant refurbishment work having been completed at HLC (other than the introduction of a Combined Heat and Power (CHP) Unit). Expenditure on the building appears to have been restricted to either cosmetic, safety or operational focused maintenance (repairs).

The CBRE Building Condition Report has aided council officers in understanding the barriers to any continued long term safe and reliable use of the HLC buildings.

CBRE state that-

“the property is considered to be in poor condition with significant defects evident to the structure, external envelope and engineering services, requiring either major work or replacement in the immediate to near future”

To assist members in understanding the CBRE report I have broken down the findings in accordance with simple and recognisable elements of a building: roof, walls and windows, foundations and structure, heating, lighting and water.

3.0 Roof Structure



Due to the way in which the building has been extended in phases over time, and the need to bring three phases of construction (pool, squash courts, sports hall) into one building envelope, it has been necessary to incorporate large areas of flat roof structure into the building.

A flat roof structure (as a general rule) does not perform as well as a pitched roof. The deterioration process of a flat roof typically follows the sequence of failure of the covering at seams and upstands allowing water penetration, breakdown of the roof covering due to the effects of UV light on covering materials and rotting of the deck and structural supports at which point collapse can occur.

At HLC there is clear evidence of the failure of the roof covering along a number of seams. Substantial areas of the covering have also begun to fail due to UV light induced breakdown of the bitumen based coverings. There is evidence that water (from rain and snow etc.) is finding its way through the flat roof covering. The problem has been compounded by the theft of lead flashings which has allowed further water ingress. It is highly likely that there is rotting of the roof deck and possibly the timber supports. The extent of any such decay cannot be determined however without substantial unpicking of the structure. Without renewal of the roof structure there will be a structural failure of the existing roof at some future date.

The following areas of HLC have flat roof structures:

- Squash Courts
- Bar
- Entrance and admin areas
- Swimming pool
- Wetside changing areas

All show signs of advanced failure and will require replacement in the short to medium term if continued use of the building is planned.



Flat Roof Seams Showing Water Penetration



Breakdown of Bitumen Covering

From the key point summary in the CBRE Condition Report

“The roof to the swimming pool is life expired and requires wholesale replacement”.

The dryside sports hall constructed in 1987 does not have a flat roof covering it is covered by a pitched roof using a plastic-coated steel cladding panel covering. These systems generally perform well providing the plastic coating is undamaged. Unfortunately, during construction, it is necessary to drill through the panels to fix them to the structure below. This creates hundred of “weak points” within the roof system where over time corrosion will become establish. In addition the plastic coating at the edges of panels can become weathered after a number of years exposure to the elements. This can allow water to creep under the coating to corrode the panel edges.

From the key point summary from the CBRE Condition Report on Sports Hall, Café, Gym and Dry Changing;

“The roof, however, is life expired, as the factory applied finish to the roof sheets has failed and is beginning to break down”.

In addition, the same report on Squash Courts / Reception / Studios / Management Offices / Wet Changing roofs are summarised;

“The roofs are generally poor and require either wholesale renewal or repair in the short term”.

At HLC evidence of advanced corrosion of the edges of cladding panels can be observed. This gives rise to concern that fixing points may also be corroded and that panels could become detached in severe weather. This could only be disproved by a destructive survey involving the removal of areas of covering.

The CBRE condition survey reports that

“the profiled metal roof covering to the sports hall, gym and dryside changing area is in poor condition. The roof sheets date from original construction in 1987 and are over 34 years old. The lap and gutter edges are suffering from cut edge corrosion. The corrosion is progressive and can be problematic if it extends to the fixing bolts for the roof sheets, which is likely to happen in the medium term without treatment”.



Corroded Edges to Cladding

4.0 Walls and Windows

Beneath the roof structures, the building envelope is made up of brickwork, cladding and curtain walling (a window system that typically extends from ground level to the building eaves and forms a substantial element of the building enclosure).

Where the building envelope has been formed using traditional brickwork, this is generally in good condition.

For those elements of the envelope where cladding has been used as the covering, similar problems to those for the clad roof exist.

The most significant areas of building envelope failure are associated with the curtain walling. Almost all sections of curtain walling are exhibiting peeling of the protective coatings applied to the metal framework, whilst the seals on most glazing panels have also failed. The seals serve to keep an airtight gap between the two panes of glass in a double-glazed unit and to retain the glass unit in its surrounding frame. Seal failure is unsightly (the glass

appears misted with condensation) and significantly impacts thermal performance (building energy efficiency).



Pictures above show failed window seals allowing misting of panels and poor condition of timber doors

CBRE state

“ The glazed curtain walling to the rear and left elevations of the indoor swimming pool and front elevation plant room is in poor condition. The pre-finished powder coating has been overpainted with a non-compatible decorative finish which has failed and is peeling. The double-glazed units have comprehensively failed with condensation built up between the panes. Moss growth is also evident to the seals of windows. The curtain walling is beyond economical repair and requires wholesale replacement.”

5.0 Structure

The steel portal frame forming the dryside sports hall is in good repair. In contrast however the swimming pool basin which is supported on concrete supports shows significant signs of structural decay to an extent such that future collapse cannot be ruled out.

CBRE report

“the concrete structure to the swimming pool is cracked and spalled in several areas most likely due to the high levels of humidity and chemical use”.

“large parts of the concrete basin itself have detached and are moving away from the main structure suggesting that the reinforcement steel is corroded and expanding”

The following photographs show some of the structural issues at the HLC. It is worth noting that these areas of building decay appear to have accelerated since the CBRE report was produced in late 2021.



Left December 2021. Right August 2022

The above picture shows the Swimming Pool basin in the Plant Room. CBRE had concerns regarding the structural integrity of this area.

“Given the extent of deterioration seen, we recommend that a package of concrete testing is undertaken to determine the condition of the concrete itself and embedded steelwork. The test results should be reviewed by a structural engineer and a package of remedial works undertaken prior to any proposed re- use being considered”.



Structural Cracking To Pool Basin



Corrosion of Reinforcement Within Structural Concrete



Deterioration Of Supports to Health Suite



Corrosion Of Steel Supports



The main incoming gas supply is via the Plant Room next to the Swimming pool at the wet side along with the incoming electrical and water supplies.

HLC uses gas as its main source of heating fuel. The squash courts utilise high level gas fired radiant heaters. The majority of the centre is heated by a traditional wet-based system using radiators. The poolside changing areas having a blown air heating. All ducting, pipework and heat outlets are life expired and require renewal and refurbishment.

The building was originally configured with four heating boilers. It is believed this was on the principle of two and two, whereby two boilers would be operational with two on standby. At a later date, these original boilers were supplemented with a Combined Heat and Power Plant (CHP), presumably in an attempt to lower running costs. The CHP unit generated the electricity required to power the building whilst the heat generated was used to heat the building and pool water.

A recent Electrical and Mechanical survey of the leisure centre has identified that only one of the original four boilers is currently working. The other three boilers have been cannibalised over time to provide spare parts to keep one boiler working and these are now beyond repair. The remaining functioning boiler is in relatively poor condition, with no ready source of spare parts. Any significant breakdown of the remaining boiler would likely result in the need for total replacement.

The CHP plant is also currently non-functional and is understood to have been in this condition for some years.

If the HLC building were required to provide a reliably comfortable environment for users then the building operator will need to set aside funds for a complete refurbishment of the heating system and replacement of existing boilers in the near future.

From the CBRE Report:

“The mechanical services are dated and in a deteriorating condition with the vast majority being obsolete, reaching the end of their operational and serviceable life and beyond economical repair.

There are significant inefficiencies with the current controls set up and lack of pipework insulation.

The services are generally specific to the operation of a Leisure Centre. There is little or no economically viable scope to reutilise these systems for a re-purposed facility”.

7.0 Cooling

Air-conditioning units have been installed in a limited number of parts of the Leisure Centre building including the café and the gym. From the Electrical and Mechanical Survey, it is understood that whilst these systems are old, they continue to function.

Attention is drawn to the need to regularly maintain air-conditioning units to prevent the build up and spread of harmful bacteria such as those responsible for Legionella.

8.0 Potable Water Supply

The HLC building contains a significant water storage tanks designed to ensure there was a ready supply of water within the building, particularly for wet-side operations (showers, toilets, steam-room etc). Since closure of the building as a leisure centre this tank has begun to present hazards to health due to bacteriological colonisation e.g Legionella. The problem has escalated to a point where the tank and the water supplies from it have had to be disconnected and drained down.

Unless any future reuse of the building proposes to require the same volumes of water as were used to support the leisure centre usage, then it will be necessary to replace the water tanks with one appropriately sized for the future use or wholesale reconfiguration of the water management system.

9.0 Power and Lighting

The Electrical and Mechanical Survey of the building carried out in 2021 identifies that whilst the building has an adequate power supply for current or likely alternative uses, the wiring network in the building is at least 35 years old and has been the subject of numerous alterations and additions during that time.

Electrical fittings are again of varying age with a significant number in non-working condition

From the CBRE Report:

“The current electrical services within the building appear to be functioning adequately for the building in its current form, however several services are past or approaching the end of their useful life expectancy.

Should the building use be changed and the layout amended these older systems will require replacement, along with considerable reconfiguration to all remaining systems to make them fit for purpose within a reconfigured layout”.

10.0 Summary

Hermitage Leisure Centre is a commercial building created in a number of phases.

The youngest parts of HLC are now 35 years old and the oldest 60 years old.

It is likely that the building was originally built with a 30 year design life.

Buildings constructed in phases inevitably require compromise of design. These compromises often lead to weaknesses in the structure and fabric which, as a building ages, require the concentration of maintenance on these areas. This approach also means that any disaggregation of elements of the building is very difficult to achieve and would require significant investment.

The headline condition issues with the HLC buildings are as follows:

- The flat roof structure covering most of the building is life expired and at risk of failure. Should the covering begin to allow significant water ingress then the deck and structure below is likely to deteriorate quickly leading to potential for collapse.
- The covering to the pitched roof over the sports hall is suffering from corrosion of both the covering and the fixings. There is a risk of sheeting becoming detached in the future if corrosion isn't arrested.
- Clad walls have similar corrosion issues to the pitched roofing. Curtain walling across the whole building has failed.
- There are the beginnings of structural failure under the pool the severity of which appears to have accelerated since the leisure centre was closed.
- The heating system within the building is end of life and will need replacement if the building is to be reused.
- There are bacteriological issues with the water supply to the building which would require addressing urgently to ensure occupiers aren't put at risk.
- Wiring and electrical fittings within the building need renewing. The security, CCTV and fire alarm systems are at the end of their operational life and require replacement.

- The costs to address the items identified in the Condition survey are as follows:
(as of December 2021)

Immediate	£30,750
Year 1	£1,200,000
Years 2-5	£147,500
Total	£1,378,250

This does not include any work identified as a result of the structural survey of the Swimming pool or other works not identified in the report.

It is considered that CBRE's assessment that the HLC building is end of life is a fair reflection given the number of issues presenting.