

**REPORT FOR -  
Abercromby  
Primary School  
Condition Survey**



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**REPORT FOR –**  
**ABERCROMBY PRIMARY SHOOOL**

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# 1.0 Abercromby Primary School



Abercromby Primary School was built in 1951 using traditional construction techniques and has a gross internal area of 3514sq m. The majority of the school is single storey with flat roof with the exception of a 2 storey viewing area and store to the assembly hall and duplex height of the assembly hall and gymnasium with pitched ceramic tile roofs.

The school is located on School Road in Tullibody and provides education facilities for approximately 400 pupils from a mixed catchment area of local authority and private housing developments.

The main school comprises 17 classrooms, a dining room with a servery, a gymnasium and an assembly hall.

In 1985 a purpose-built nursery unit was constructed located to the rear of the school grounds. The central section of the nursery building is pyramid shaped which utilises a framed structure with a combination of cladding materials which envelope the building.

The school and nursery benefit from spacious grounds, play areas and with good provision for recreational activities.

## 2.0 Method Used to Assess Condition

To obtain the overall condition of the primary school, the elements were each assigned a condition rating (A to D) by the surveyor. The overall condition category was determined from this information, through the application of a weighting and scoring system. This translated the ratings assigned to the elements to numeric values:

- Condition A: 1
- Condition B: 0.75
- Condition C: 0.5
- Condition D: 0.25

These values were multiplied by a weighting for each respective element. The results were then summed, and expressed as a percentage of the maximum weighted score.

Using standardised percentage bands the overall condition category was determined as follows:

- More than 85%: Condition A: Good
- Between 60% and 85%: Condition B: Satisfactory
- Between 40% and 60%: Condition C: Poor
- Less than 40%: Condition D: Bad

## 3.0 Condition Category for 2014

A condition survey carried out in May 2014 indicated that:

### Structure and Fabric



Flat roof to single storey section of main building and extension appear to have been recently replaced and show no apparent defects.



Pitched roof to assembly hall and gymnasium are generally in a good state of repair. Minor decay noted to tiles in conjunction with occasional slipped tiles and vegetation growth.



Pyramid style pitched roof to nursery shows signs of wear and tear with loose profiled joints. Internal moisture damage noted to ceiling suggesting roof leaks are common.





Suspended ceilings to nursery with evidence of moisture damage from possible roof leaks.



Early signs of decay to brickwork and mortar joints at low level to front and right hand elevations



Typical example of decaying/cracked/damaged brickwork to perimeter and dwarf walls.



Deterioration to timber canopy linking main building to extension.





Internal doors are dated/damaged/worn throughout.



Typical example of dated fixed furniture installation to class room accommodation



External decorations poor in places. Flaking paint to external timber detailing.



Wall finishes decayed to second floor store area above assembly hall. Wall finishes throughout school are generally in reasonable condition with minor impact damage.



Isolated incidence of staining to carpet flooring finishes within nursery accommodation



Typical example of loose and uneven paving surfaces with vegetation growth to joints.



Dated glazing installation to nursery requiring lifecycle replacement.

## **Mechanical Services**

This report is based on a visual inspection of the premises on the 31<sup>st</sup> May 2014. No tests or full inspections of equipment and services, necessitating dismantling works were carried out.

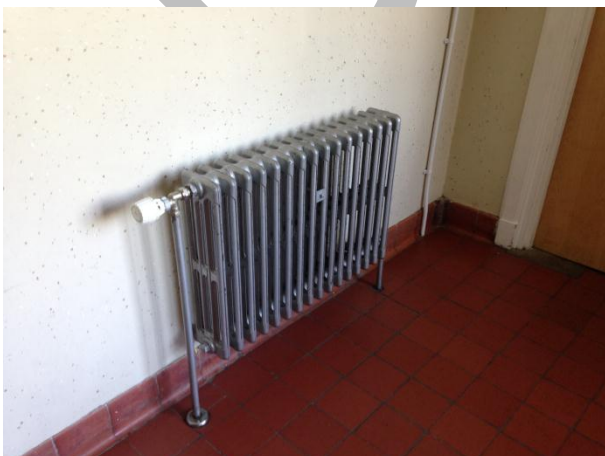
All comments made on the life expectancy of the mechanical and electrical services assume good standards of plant maintenance.



8 number modular, cast iron, atmospheric Gas-Fired Hamworthy Purewell, Automatic Ignition Boilers. Boilers were manufactured between 1993 and 2000; therefore the installed plant is between 14 and 21 years old. Visually, the condition is satisfactory; however, it should be borne in mind that the boilers are not as energy efficient as more modern alternatives. Associated pump sets and hand wheel gate valves are also showing signs of ageing. It is recommended good practice in all heating installations to use some form of water treatment to reduce formation of lime scale and black iron oxide sludge. No regime seems to indicate that systems have been chemically dosed.



ACV Heatmaster is a direct gas fired hot water storage heater utilised to provide the domestic hot water demands of the school. The heater is in satisfactory condition. Approximate year of manufacture is 2001.



Existing cast iron radiators as fitted in classrooms and the gymnasium visually seem to be in good condition. However, it should be borne in mind that without chemical dosing of the water to the heating circuits the potential for corrosion and/or sludge build-up could significantly reduce the efficiency of these devices. The radiators have been fitted with thermostatic valves (TRVs). It is not known at this stage if the TRVs have been locked down to provide tamper resistance. It was noted during the survey that the heating pipework distribution is a one pipe system which will result in the heat emitters

furthest away from the boiler plant will be starved of heat resulting in unreliable room temperatures. The main disadvantage of this system is that each radiator receives water that has been mixed with the cooled water from previous radiator.



Much of the installed sanitary ware is of an age commensurate with the construction profile of the building. Whilst this is not a general problem within itself it does however date the installation. It is assumed that pipework serving sanitary appliances is of an age similar to the actual appliances. It may be that pipework modifications undertaken in the past may have resulted in dead legs and therefore the potential for legionellosis.



Cistern within boys' bathroom showing signs of deterioration due to age.



Wash hand basins within boys/girls bathrooms dated and associated pipework showing signs of light corrosion. On some wash hand basins there are no failsafe lockable blending valves fitted limited maximum temperature at the outlets to 43C.





Kitchen canopy extract ductwork is poorly installed and duct joints/connections have been sealed using Duct tape. AS shown in the picture the duct discharges through a boarded up window. Under normal criteria the kitchen discharge would normally be at high level (above eaves height) to minimise potential of contamination and/or odours. Further investigation required into correct sizing of canopy, fire rated ductwork, gas safe interlock. Ductwork to be cleaned as per HVCA TR/19 Internal Cleanliness Ventilation Systems.



Low level pipe heating within cloakroom areas to provide background heat. Normal practice would be to provide wire mesh over pipes to prevent potential scalding (assuming flow and return temperatures of 80/72C) or re-route at high level.



3 number Myson RC-25-18 Wall Mounted LTHW Fan Convecter within the extension are in good condition.



Daikin round flow ceiling mounted cassette installed within extension in satisfactory condition. There does not appear to be any interlink between LTHW fan convectors and the installed air condition which may result in the units competing against each other.



Two number temperature thermostat, one located in Staff Room, one located outside Assembly Hall.

Room temperature thermostats need a free flow of air to sense the temperature accurately; it is our opinion that the current location of the temperature thermostats is not conducive to even heat distribution throughout the school.



## Electrical Services

The main incoming supply from the provider is fed from a 4core 95mm<sup>2</sup> SWA underground cable.

The cable terminated to a 200A Dorman Smith Load centre panel board. From the panel board the supply is distributed to the Mobile classroom, nursery and 14 DBs in the school. The age of main panel board is over 30 years.

The electrical system was last tested in 2010 and the fixed wiring certificate valid until 2015. The age of the wiring system is expected to be same age as the panel board which is over 30 years.

In general the luminaires in the class rooms and corridor are energy saving fittings with PIR control, but the luminaires in other areas are old T12, T8 and bulb which shall be replaced.

The sockets, light switches and lighting fittings varies and mixed between old and new. Age between 5-30 years old.



Main incoming PILC cable, cutout and metering.



Main incoming panel board is tested and valid until 2015, the age is over 30 years old and has exceeded the recommended useful life.



Distribution board was tested and valid until 2015, however the age of the DB has exceeded 30 years and is over the useful life recommended by electrical institutions.



Boiler house old T8 fluorescent fittings



Light bulb shall be replaced with energy saving lamp



Socket within the wooden skirting



Old lighting switch

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As a result, the school was assessed as being in **Condition B overall**. The assessment table is shown below.

**Building Estimated GIA 3514 sqm**

Property	Abercromby Primary School 2014			
Element	Condition	Score	Element Weighting	Weighted Score
Roof	Satisfactory	B	15	9.38
Floors & Stairs	Satisfactory	B	5	3.57
Ceilings	Satisfactory	B	2	1.00
External Walls, Windows & Doors	Satisfactory	B	20	12.50
Internal Walls, Windows & Doors	Poor	C	2	1.13
Sanitary Services	Poor	C	3	1.78
Mechanical Services	Poor	C	19	10.97
Electrical Services	Poor	C	14	7.88
Decoration	Satisfactory	B	9	6.75
Fixed Internal Facilities	Poor	C	2	1.00
External Areas	Satisfactory	B	8	6.00
<b>Total</b>			<b>99</b>	<b>61.96</b>
<b>Overall Building Condition</b>				<b>B</b>

As a result, the primary school was assessed as being in Condition B, although this is a general satisfactory condition there are elements which have been identified as poor.

The overall score is on the low side for the satisfactory scale and it is believed that this requires very little further deterioration before slipping into a general Condition C – Poor. Increased maintenance and future upgrade / replacement should be considered as a priority.

## 4.0 Life Expectancies & Refurb Costs

These values were obtained as result of a non-intrusive survey for each respective element. The results were then summed:

### Building

Element	Condition	Replace in Year	Cost
External Surfaces – Tarmac/Paving	B	5	£122,200
Perimeter Walls	B	2	£22,000
Roof Structure	B		
Roof Coverings	B	3	£38,500
Roof Insulation	B	Inc above	
Roof Drainage/RWG	C	1	£5,000
Roof parapets, handrails etc.	B		
Floor Structure	B		
Floor Screed	B	4	£12,500
External Decorations	C	1	£7,000
Floor Finishes	C	1	£5,000
Floor Finishes	B	5	£86,000
Floor Finishes	B	10	£105,000
Staircases	B		
Ceilings	C	1	£5,000
External Walls	B	8	£62,000
External Doors	B	3	£12,000
Windows	C	1	£12,000
External stairs, steps & ramps	B	2	£11,000
External Signage	B	5	£5,000
Internal Walls	B	2	£12,800
Internal linings/finishing/decoration	B	2	£22,000
Internal linings/finishing/decoration	B	5	£71,000
Internal Doors / Glazed Screens	C	1	£82,000
Fixed Furniture	C	1	£20,000
Internal Signage	B	4	£5,000

## Sanitary Services

Element	Condition	Replace in Year	Cost
Toilet Wash Hand Basins	C	5	£11,000
Toilet Urinals	C	5	£7000
Toilets WC's	C	5	£9000
Toilet Pipework	C	5	£20,000
Toilet Waste Pipework	C	5	£12,000
Kitchen Sinks	C	2	£2000
Kitchen Waste Plumbing	C	2	£5000

## Mechanical Services

Element	Condition	Replace in Year	Cost
Boilers	C	2	£18,000
Boiler Flue	B	2	£7000
Heating Pumps	B	10	£7500
Heating Controls	C	2	£15,000
Heat Emitters	C	2	£28,000
Heating F&R Pipework	C	2	£57,000
Hot Water Cylinder	B	5	£6000
Hot Water Pipework	C	2	£56,000
Cold Water Storage Tank			
Cold Water Pipework	C	2	£56,000
Fuel Storage			
Fuel Distribution Pipework			
Fuel Ventilation Interlockers			
Natural Ventilation			
Mechanical Ventilation	C	1	£10,000
Air Conditioning	B	10	£6000
Fire-Fighting System			



## Electrical Services

Element	Condition	Replace in Year	Cost
Electrical Power Wiring	C	5	£28,000
Electrical Power outlets and containments	C	5	£28,000
Distribution Equipment	C	5	£56,000
Lighting fitting	B	15	£95,000
Lighting switch	C	5	£14,000
Emergency Lighting	C	5	£28,000
Fire Alarm	B	15	£50,000
Security System	B	15	£25,000
Bells	C	10	£10,000
Lifts	B	20	£20,000
Lightning Protection	B	15	£9,000

The cost of the sanitary, mechanical and electrical services is based on the SPON'S guideline and floor area of the school.

The overall condition of sanitary, mechanical and electrical services in the school is satisfactory for the age of the building, however as detailed later in this report there are certain areas that would require attention.

## 5.0 Conclusions

### **Structural**

As noted within this executive summary, overall, Abercromby Primary School is well appointed and maintained for a building of its age. Across the school, internal environment can differ due to minor schemes of internal refurbishment. Capital investment is required both in the short term to improve the existing internal environment to areas of deteriorating condition in the main school and the nursery in conjunction with expenditure in the medium to long term to maintain areas with high standards of condition and complete lifecycle elemental replacement.

Investment is also required to maintain external kerb appeal and overall appearance of the school with a combination of a scheme of external improvements in the short term and future lifecycle elemental replacements.

### **Mechanical**

Main boiler plant, associated components and pipework within the basement boiler house is of an age commensurate with the building and although plant has been well maintained, it is not fully efficient in comparison to modern alternatives and is reaching the end of its natural life. Investment would be required to bring it to a better standard.

The boiler plant serves the heating requirements of the school, however as the heating pipework distribution is of single pipe design, rather than more standard two pipe (flow and return), this has a consequential result of larger pumps and larger bore pipework being required. As a consequence of a single pipework distribution there are many areas of the school building that do not receive adequate heating.

The boys' toilets near the main entrance are in a poor condition, the current sanitary ware is dated with the urinal cistern is showing some signs of deterioration due to wear and tear. The girls' toilets close to the cloakroom area have undergone refurbishment and are in satisfactory condition; however, this standard is not upheld throughout the school.

Other areas which would investment would be: kitchen extract ventilation ductwork and canopy, gas safety interlock system, pipework and valves to hot and cold water systems, and heating systems, toilet extract ventilation systems and controls system.

## **Electrical**

The electrical fixed wiring testing has been conducted and will expire in 2015.

The main supply switchgear are ageing.

The sockets and lighting are mixed between old and new. Some sockets and lighting switches are old and discoloured.

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# 6.0 Recommendations

## Structural

The following essential actions are recommended to prevent serious deterioration of the fabric or services and/or address a medium risk to the health and safety of the occupants of the building:

Complete a scheme of external redecoration to metalwork, gates, timber detailing, handrails and external doors to prevent future elemental decay and to improve physical appearance of the school.

Replace, repair and overhaul internal doors throughout main schools. A majority of doors are in poor condition throughout and some which are labelled as fire doors appear inadequate with excessive perimeter gaps, signage provision and door closing devices.

Complete a scheme of wall repairs to main building structure and to perimeter dwarf walls and retaining walls across the site.

Complete a scheme of overhaul, repair and replacement of defective guttering and downpipe systems to main school and nursery. Vegetation growth observed in guttering systems, this may lead to future blockages and possible decay to surrounding elements as a result.

## Mechanical

The following is a brief overview of the recommendations that we regard as advisable to make the building fit for purpose with regard to existing legislation/regulations.

Option A outlines minimum requirements, whilst option B details full refurbishment of the existing plant.

### Option A

1. Replace and reposition temperature sensors;
2. Replace cast iron low level radiators to Assembly Hall;
3. Clean and flush existing pipework distribution system;
4. Install new extract fan to cleaners store;
5. Install new toilet extract ventilation system to toilets;

6. Service and replace parts as necessary on existing boiler plant;
7. Ensure that all wash hand basins are fitted with temperature blending valve.

### Option B

1. Based on a detailed survey we would recommend plant room is reconfigured and all heating pipework be replaced with two pipe system;
2. Replace existing modular boilers with high efficiency condensing models. Ensure that dosing pot and pressurisation unit are installed;
3. Replace existing cast iron heat emitters with LST (low surface temperature) units, ensure that tamper proof valves fitted to all devices;
4. Replace low level emitters in gymnasium and low level heat pipes in changing rooms with high level LTHW radiant panels and high level heat pipes respectively;
5. Modify existing kitchen extract canopy and associated ductwork. Ductwork discharge point to be relocated. Also ensure that gas safety interlock is fitted as standard;
6. Replace all toilet extract ventilations fans and associated ductwork with new;
7. Replace all cleaners extract ventilation fans/ductwork with new;
8. Replace all old sanitary ware/pipework with new, ensure that all wash hand basins are fitted with appropriate blending valves. Suggest IPS system be adopted to prevent unauthorised tampering.
9. Check validity of air conditioning and LTHW systems within new extension.

### **Electrical**

To comply with the electrical institute legislation/regulations, the following improvements are recommended:

Option A outlines minimum requirements, whilst option B details full refurbishment of the existing plant.

### Option A

1. Maintain the existing lighting and socket and repair damage items. Rectify the

- unsatisfactory installation as indicated in test certificates if any.
2. Carry out fixed wiring testing 2015.

#### Option B

1. The electrical system was tested in 2010 and the fixed wiring certificate valid until 2015. New test shall be carried out in 2015.
2. The main panel board is over 30 years old and should be replaced.
3. The sub distribution boards are ageing and over 30 years old; all the old DBs should be replaced.
4. The age of the wiring system is expected to be same age as the panel board which is over 30 years and should be replaced.
5. All the old luminaires using T12, T8 and tungsten filament bulbs which should be replaced with new energy saving lamps.
6. The power/data sockets and light switches which are old over 30 years should be replaced.

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