Facilities manager to complete green italic sections

Note: Whilst based on a real school, the names and locations used in this example are fictional and any resemblance to actual locations, people or firms is unintentional.

Building log book

Carlton Primary School

48 Oldfield Road
Wickford
Westbury
WE3 4JJ
01234 567890

Building owner: Westbury Country Council

Facilities manager responsible for log-book: *Mrs G. Jones* Signed: *G. Jones*

(Head teacher)

Emergency telephone no: 07942 987654

This building log book was prepared by

Mr John Briggs
Westbury County Council
County Hall
Westbury WE3 3FH
j.briggs@westburycc.gov.uk

Log book version: *1* Date: *5/01/06*

This building log book is analogous to a car handbook, providing the facilities manager with easily understood information about how the building is intended to work. It also allows ongoing building energy performance and major alterations to be recorded.

Please ensure that this log book is kept up-to-date and in a readily accessible (designated) position, e.g. in the main building operations room. It contains important information for anyone carrying out work on the building and its services.

This log book is to be kept at all times in: *Head teacher's office*

Electronic master is kept at: *Head teacher's PC: C:\building\logbook.doc*

Contents

(Not more than one page)

Do not remove from: *Head teacher's office*

1 Building history

(Not more than one page)

The log book should be reviewed annually as part of the organisation's quality assurance system and an entry should be made for each review. Where the log book has been updated then the changed pages should be recorded.

Review date	Description of annual log book review and updates made	Pages updated or added	Facilities manager's signature	Date
	Handover took place on 12 December 2005	N/A	GJ	12/12/05

2 Purpose and responsibilities

(Not more than one page)

Purpose of a building log book

This log book is an easily accessible focal point of current information for all those working in the building. It has four main functions:

- **Summary of the building:** it is a summary of all the key information about the building, including the original design, commissioning and handover details, and information on its management and performance. In being a summary, it does not wholly duplicate or replace the O&M manuals. The log book is necessary for compliance with Building Regulations Part L2.
- **Key reference point:** it is the single document in which key building energy information is logged. It may be regarded as the hub document linking many other relevant documents. The log book should provide key references to the detail held in less accessible O&M manuals, BMS manuals and commissioning records. It should therefore be kept in a readily accessible (designated) position in the main building operations room and should not be removed without the approval of the facilities manager.
- **Source of information/training:** it provides a key source of information for anyone involved in the daily management or operation of the building and to anyone carrying out work on the building and its services. It will be relevant to new staff and external contractors/consultants and may play a role in staff training and induction.
- **Dynamic document:** it is a place to log changes to the building and its operation. It is also used to log building energy performance and continual fine-tuning commissioning. It is essential that it is kept up-to-date. Alterations should only be made with the approval of the facilities manager and should be signed and dated by that person.

Further guidance on using building log books is given in the Carbon Trust's Good Practice Guide GPG 348: *Building log books — a user's guide*, available from www.thecarbontrust.co.uk

This building log book was prepared by

Mr. J Briggs
Westbury County Council
County Hall
Westbury WE3 3FH
5/01/06

Facilities manager responsible for log-book: *Mrs. G Jones (Head teacher)*
01234 567890 (07942 987654)

Signed: *G. Jones* Date: *7/01/06*

Key responsibilities of facilities manager:

— to ensure that the log book is correct and up-to-date at building handover and when passing it on to a successor

— to ensure that the log book is kept up to date on an ongoing basis including any changes to the building fabric, services, operation or management

— to ensure that building maintenance and energy performance are logged

— to ensure that all those working in the building are made aware of the information contained in the log book

— to ensure that the log book is kept in its designated location at all times.

3 Links to other key documents

(Not more than one page)

Document (where applicable)	Location
Emergency procedures (O&M manual section 7)	*School office*
Health and safety file (O&M manual section 2)	*School office*
Hazard register (O&M manual section 2)	*School office*
O&M manuals (Mechanical and Electrical vols. 1-9)	*School office*
Asset register	*Estates office, County Hall, Westbury*
BMS operations manuals	*Estates office, County Hall, Westbury*
Record drawings (O&M manual section 10)	*School office*
Boiler log book	*Boiler room (with the equipment)*

4 Main contacts

Emergency contact name 1 Mrs G Jones 48 Oldfield Road Wickford Westbury WE3 4JJ Tel: 01234 567890 (07942 987654)	***Emergency contact name 2*** Mr John Briggs Westbury County Council County Hall, Westbury Tel: 01234 56789 j.briggs@westburycc.gov.uk
Electricity emergency contact name Powersave Electricity Co. Ltd (Emergencies and power failures) 68 Wellford street Westbury WE1 0PJ Tel: 01234 783838 (emergency@powersave.co.uk)	***Gas emergency contact name*** Western Gas Ltd 14 Gas lamp street Pickford EX4 4FJ Tel: 01230 111999 (supplies@westerngas.co.uk)
Water emergency contact name South West Water Ltd (Water supplies) 56-68 Crane Avenue Westbury WE1 0PJ Tel: 01234 458627 (customerservices@sww.co.uk)	
Lead designer Smith Property Services Greenwood House 91-99 New London Road Westbury WE7 0PP Tel: 01234 567893 Fax: 01234 987654 (info@smith_property_services.co.uk)	***Building services designers*** Smith Property Services Greenwood House 91-99 New London Road Westbury DM7 0PP Tel: 01234 567893 Fax: 01234 987654 (info@smith_property_services.co.uk)
Lead building contractor Gunter Plc Woadeen House Oxford Way Davidstown Bedfordshire GH5 7AD Tel: 09654 1234567 Fax: 09654 1234568 (www.gunterplc.co.uk)	***Planning supervisor*** Smith Property Services Greenwood House 91-99 New London Road Westbury DM7 0PP Tel: 01234 567893 Fax: 01234 987654
Commissioning agent Bryan M&E Services Ltd 5 Einstein Way Westbury MC10 1LM Tel: 09654 753987 Fax: 09654 753988 (www.bryangroup.co.uk)	***Services installer subcontractor*** Bryan M&E Services Ltd 5 Einstein Way Westbury MC10 1LM Tel: 09654 753987 Fax: 09654 753988 (www.bryangroup.co.uk)

Maintenance contractor	***O&M manual author***
Morse & Co Ltd 58 Marconi Way Latham Westbury XX3 5YY Tel: 09654 109283 Fax: 09654 109284	Bryan M&E Services Ltd 5 Einstein Way Westbury MC10 1LM Tel: 09654 753987 Fax: 09654 753988 (www.bryangroup.co.uk)

5 Commissioning, handover and compliance

(Not more than two pages, if possible)

Part L requires the building services systems be commissioned so that the system(s) and their controls are left in working order and can operate efficiently. Use CIBSE Commissioning Code M to develop a commissioning plan and ensure that the systems operate correctly.

Commissioning overview

Commissioning was carried out by Bryan M&E Services Ltd over the period November to December 2005. The systems have been tested and commissioned to CIBSE Commissioning Codes available at the time.

CIBSE Commissioning Code	Followed? (Yes/No)	Certificate included in appendix? (Yes/No)
Code M: Commissioning management	YES	YES
Code A: Air distribution systems	YES	YES
Code B: Boilers	YES	YES
Code C: Automatic controls	YES	YES
Code L: Lighting	YES	YES
Code R: Refrigerating systems	YES	YES
Code W: Water distribution systems	YES	YES

Commissioning results

Commissioning period *11/11/05* **to** *10/12/05* **Signed:** D McCartney	**1. Were the system and its controls installed as shown in the design drawings? (Yes/No)**	**2. Did operation meet the design specifications in all the required modes? (Yes/No)**	**3. Did the system operate efficiently in all modes? (Yes/No)**	**Comments/problems?** Where the answer is NO, indicate any commissioning problems or significant changes that have been made to the designs during (or as a result of) installation/commissioning, or any value engineering exercises, including any significant commissioning failures and remedial work that took place.
Lighting	YES	YES	YES	
Fans	YES	YES	YES	
Mechanical ventilation	YES	YES	YES	
Pumps	YES	YES	YES	
Space heating	YES	YES	YES	
HWS	YES	YES	YES	
Central BMS	YES	YES	YES	Subsequent fine-tuning of controls carried out after handover
Kitchen equipment	YES	YES	YES	

.

Air infiltration

A building air pressure test was carried out on 21/06/01 and showed a measured air permeability of 8.3 $(m^3/h)/m^2$, within the target standard of 10 $(m^3/h)/m^2$ at 50 Pa in Part L2.

Insulation continuity

An infra-red thermography investigation was carried out to identify the continuity of insulation and any thermal bridging in the building fabric. These test showed that insulation continuity was satisfactory.

Handover

Handover took place on:	12 December 2005
End of defects liability period:	12 December 2006
The handover procedure was managed by:	Smith Property Services (Lead Designer)

The documents handed over are listed in section 3

6 Overall building design

(Not more than three pages, if possible)

General description of building

Carlton primary school in Wickford, Westbury was built in 2002 and provides 8 classrooms accommodating 210 pupils between the ages 4 and 11. The school is also used for evening events by local residents. It is a naturally ventilated single storey brick construction with light-wells in the pitched roof to provide both daylight and ventilation to classrooms. Central heating boilers supply radiators and a gas fired storage water heater provides hot water for hand washing and catering. Fully equipped kitchens at the east end of the building provide roughly 60-70 meals/day, cooked on-site. The multi purpose hall has stage lighting and is sometimes used for local community evening events. One classroom on the south side is devoted to ICT with 16 PCs and associated printers/server etc.

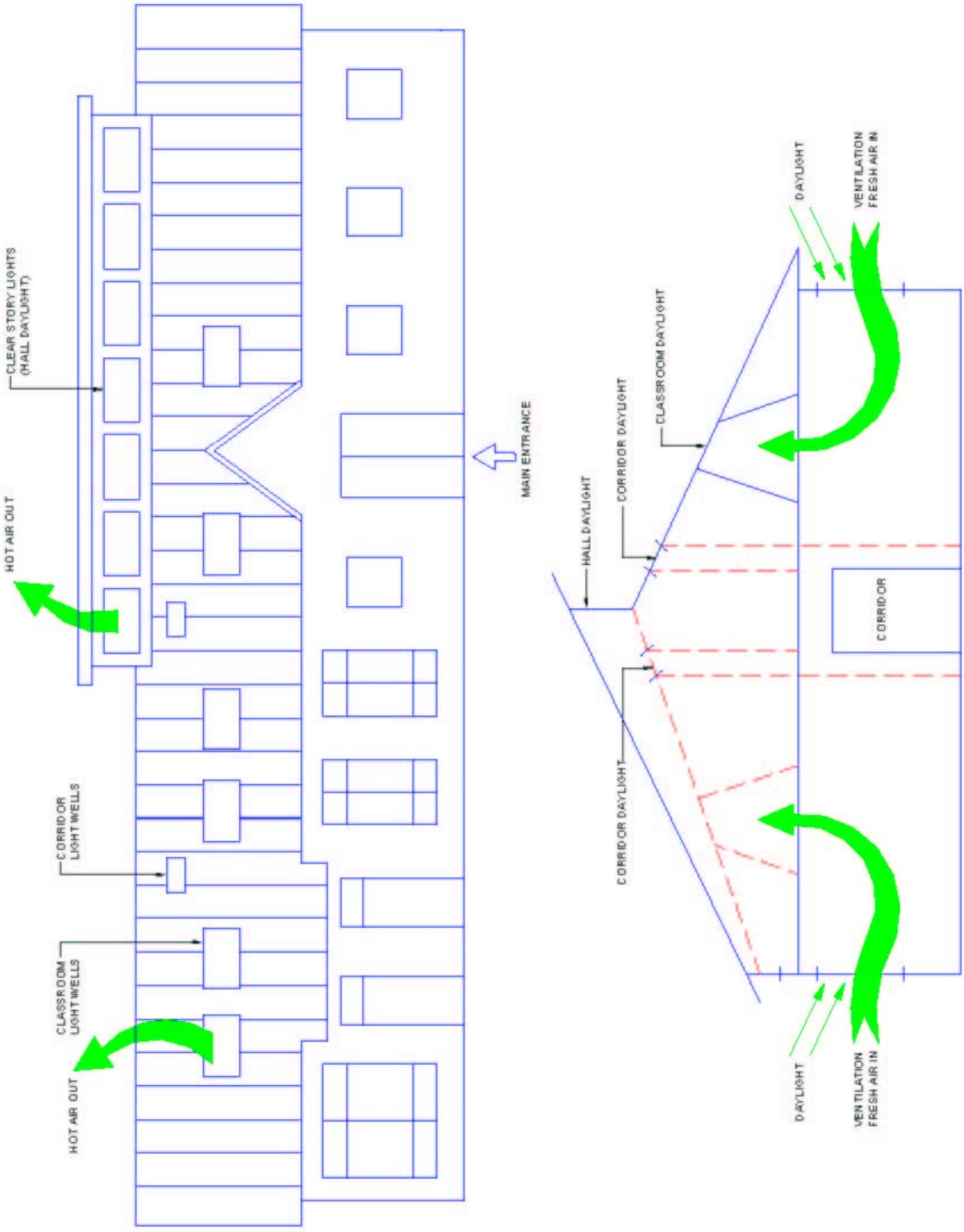
Client requirements

Design Parameters

External design temperature	-1 °C
LPHW flow temperature	82 °C
LPHW return temperature	71 °C
Inside design temperatures	16 to 21 °C (room depending)
HWS storage temperature	60 °C
HWS circulation temperature	55 °C
Blended HWS supply temperature	43 °C
Air change rate WCs	6 ACH minimum
Air change rate cloaks	6 ACH minimum
Air change rate other internal rooms	4 ACH

Conceptual design

The school is naturally ventilated via openable windows from the North and South facades and through light wells over the corridors and classrooms. Space heating is provided by three gas fired LPHW boilers located in a plant room at the East end of the building. These supply radiators in most areas and fan convectors in the main hall. Lighting is generally tubular or compact fluorescent throughout, supplemented by daylight from the general glazing and via the light wells in the roof.


CLEAR STORY LIGHTS (HALL DAYLIGHT)
HOT AIR OUT
MAIN ENTRANCE
CORRIDOR LIGHT WELLS
CLASSROOM LIGHT WELLS
HOT AIR OUT
DAYLIGHT
VENTILATION FRESH AIR IN
CLASSROOM DAYLIGHT
CORRIDOR DAYLIGHT
HALL DAYLIGHT
CORRIDOR
CORRIDOR DAYLIGHT
DAYLIGHT
VENTILATION FRESH AIR IN

Special design features

The light wells over the corridors and classrooms form a natural daylighting and natural ventilation feature of the design. The services are relatively energy efficient based on condensing boilers and fluorescent lighting.

Design assessment

The design team carried out an assessment of carbon emissions using the carbon emissions method. This showed the calculated annual carbon emissions of the building are estimated to be 7.5 kg C/m^2/yr and this should be no greater than those from a notional building of the same size and shape designed to comply with the Elemental Method

Benefits and limitations of the design

The building and services are relatively simple and should therefore be easy to manage and control.

Ventilation rates are designed on the basis of a no smoking policy throughout the building and any change in this policy could result in inadequate ventilation.

There is a small possibility of summer overheating but this can be mitigated by good use of blinds and early morning ventilation. This is particularly true of the ICT room.

Key 'dos and don'ts'

Do:

(1) Monitor the heating plant via the BMS to ensure good operation
(2) Ensure good use of top light windows on light-wells to provide good ventilation
(3) Watch for condensation at the condensing boiler drain as this is a good indicator of high efficiency

Don't:

(1) Operate the plant 24 hours/day, seven days/week
(2) Overheat the building
(3) Leave PCs on unnecessarily in the ICT room as this could overheat the room and waste energy

7 Summary of areas and occupancy

(Not more than one page of text plus one simple plan per floor)

Occupancy and activities

The total number of occupants in the building is *190*

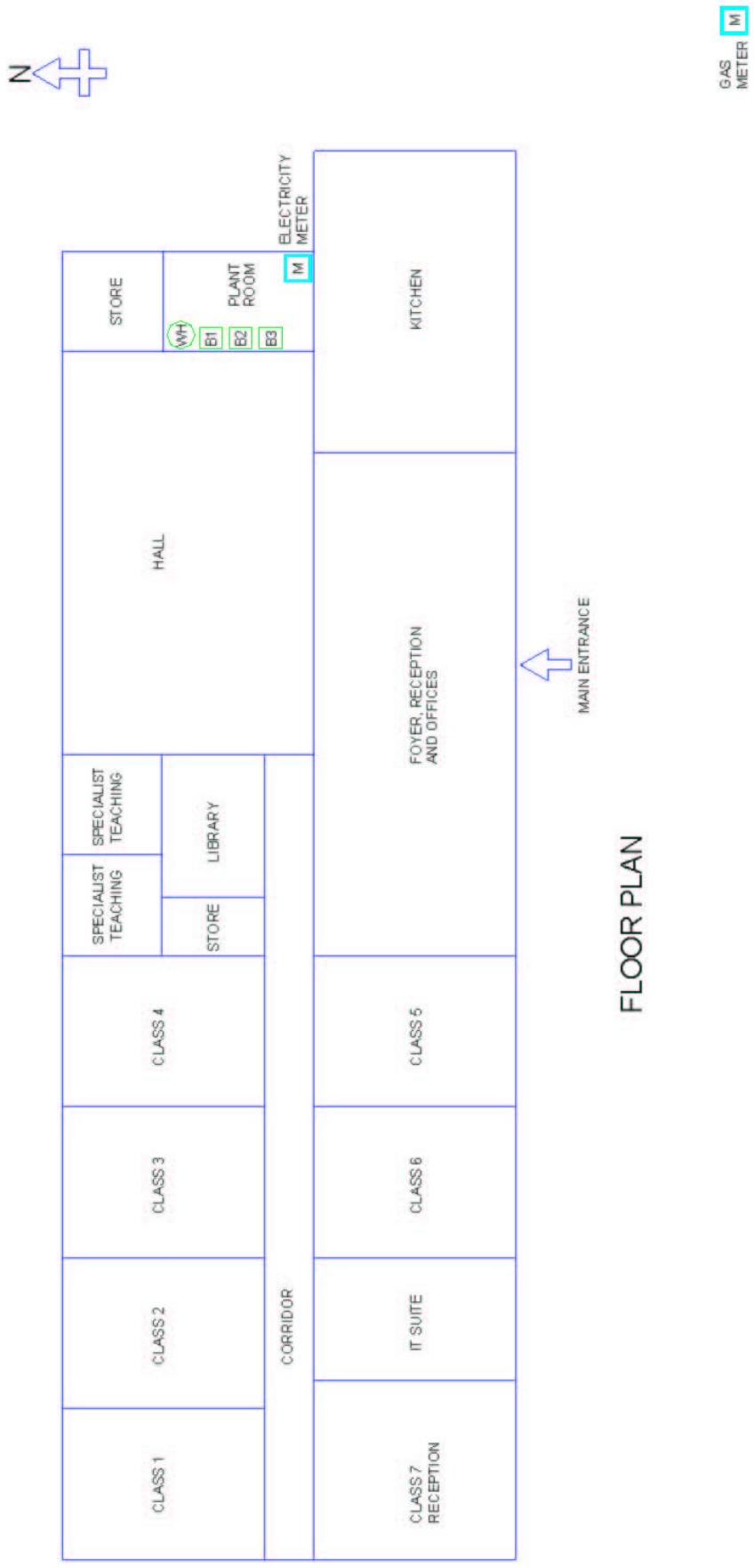
Main occupied areas	Weekday hours	Saturday hours	Sunday hours	Total hours/week	Flextime (Yes/No?)	Late working sometimes (Yes/No?)	No. of occupants
Classrooms	*9:00-15:15*	*None*	*None*	*31.25*	*No*	*Evening events roughly twice per week*	*169*
Office and staff areas	*8:30-16:30*	*None*	*None*	*40*	*No*	*No*	*15 teachers 3 admin.*
Kitchen	*7:00-14:00*	*None*	*None*	*35*	*No*	*No*	

Floor areas

The total floor area of the building is *1112* m^2 (based on gross floor area)

	% of total area by servicing system						Total %	Total area (m^2)
Area type	Untreated (%)	Naturally ventilated (%)	Mechanically ventilated (%)	Mixed mode (%)	Heating and cooling only (%)	Full air conditioning with humidity control (%)		
Classrooms/teaching spaces		*42.6%*					*46%*	*474*
Hall		*13.1%*					*13.1%*	*146*
Staff room, admin., general areas		*37.4%*					*37.4%*	*415*
Kitchen		*3.6%*					*3.6%*	*40*
Plant room and store	*3.3%*						*3.3%*	*37*
Total (%)	***3.3%***	***96.7%***					***100%***	
Total area (m^2)	***37***	***1112***						***1112***

Floor plan



8 Summary of main building services plant

(Not more than one summary page and one page per main system)

Insert a summary list of main energy using plant, e.g. boilers, water heaters, chillers, fans, pumps etc. with plant capacities and location. In larger buildings, this might be restricted to items above, say, 5 kW in order to keep the list concise whereas smaller buildings might include everything down to say 0.5kW. Most plant is rated by its output but some plant can be rated by input.

Main plant items above *[power]* kW are shown below. The asset register *[title and location]* provides further detail.

Main plant	**Location**	**Input** (kW)	**Output** (kW)
Boilers: 2 x Broag Quinta 65 (condensing)	Boiler room		12-61 kW modulating
Boiler: Broag Quinta 45 (condensing)	Boiler room		8-40 kW modulating
Hot water generator: AO Smith	Boiler room		56.5 kW
Heating pumps (north zone) variable head: Grundfos	Boiler room	400 W	
Heating pumps (south zone) variable head: Grundfos	Boiler room	400 W	
Heating Pumps Constant Temperature	Boiler room	85 W	
Hot water Circulating Pump	Boiler room	55 W	
Hot water anti-Legionella pump	Boiler room	45 W	
Kitchen ranges: 2 x MV M Line	Kitchen	2 x 34.3 = 68.6	
Fryer: MV M Line	Kitchen	13.14	
Dish washer	Kitchen	7.6	
Freezer: Foster	Kitchen	2.5	
Fridge: Foster	Kitchen	1.7	
Kitchen supply fan	Kitchen roof void	1.0	
Kitchen extract fan	Kitchen roof void	1.5	
Fan convector motors (x 3)	Hall	3 x 118 W	
Toilet extract fans (x 9)	Roof void	9 x 26	
Toilet extract fans: (x 3)	Roof void	3 x 58	
Toilet extract fans: (x 4)	Roof void	4 x 21	

ELECTRICAL DISTRIBUTION

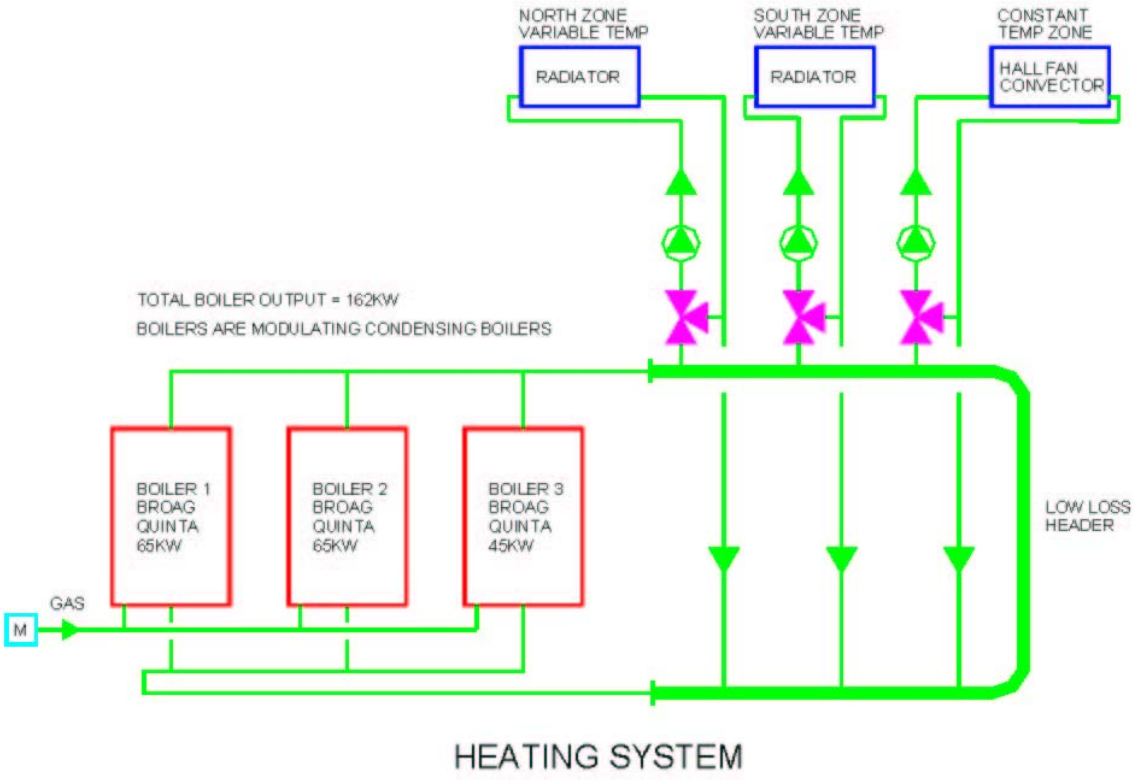
The main electricity meter is located outside the plant room on the east end of the building. A new electricity board supply cable was installed to the site and terminates in the new electrical intake and MCCB panel located in the electrical switch cupboard next to the plant room. A low voltage switchboard feeds various distribution boards located around the building via 32 amp ring main circuits. From the new sub-main cables distribute to secondary distribution boards throughout the building. Distribution boards are as detailed in drawing no. 3322/E/531. The small power layout is shown in drawing nos. 3322/E/610 & 611.

GAS SUPPLY

The main gas meter is located outside the building at the east end of the site housed in a separate meter box. A new underground gas main has been installed from the meter to the boiler room and kitchen area as shown on drawing no. 3322/M/500. The shut-off valve is located in an external wall mounted hydrant type enclosure. The boiler room has been provided with an emergency gas shut-off system, comprising electro-thermal links, emergency shut-off buttons at exit doors and a magnetically retained solenoid gas shut-off valve located in the plant room. An emergency exit button is additionally located in the kitchen area. The valve will shut off in the event of loss of power.

SPACE HEATING

Space heating is provided by three Broag Quinta gas-fired low pressure hot water (LPHW) boilers located in a plant room at the east end of the building. These are fully modulating condensing boilers and the design temperatures of 80 ºC flow and 60 ºC return have been selected to encourage condensation and high efficiency. Flues are twin skin insulated stainless steel. The boilers supply two variable temperature radiator circuits that heat most of the school. A further constant temperature circuit supplies fan convectors in the main hall. A pressurisation unit provides the correct pressure in the water system. The north and south zones have independent time and temperature control. Low surface temperature radiators have been installed in the special teaching and reception classes. Radiators are fitted with thermostatic radiator valves (TRVs) for local temperature control. See drawing nos. 3322/M/530 & 531 for details. Total installed plant capacity is 162 kW with an installed power density of 145 W/m^2 based on the gross floor area.



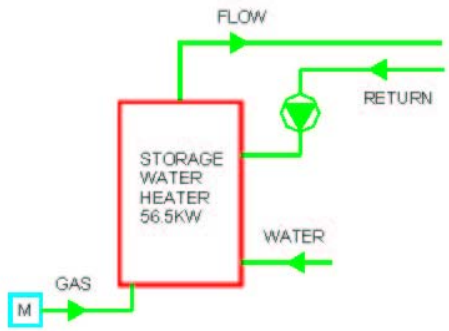
HEATING SYSTEM

Control settings: A control panel containing a York BMS system has been provided to control all the items of plant in the boiler room. This provides optimum start/stop time control and weather compensated temperature control on the boilers and the two variable temperature heating zones. The caretaker has the facility to provide 3 additional hours of heat via a run on timer located in the plant room. The caretaker can also manually adjust temperatures by ±2 ºC and switch the system off during holidays.

Energy/water saving features: the condensing boilers will provide high efficiencies under weather compensation control.

Tips for good operation: Watch for condensation at the boiler drain as this is a good sign of high efficiency.

DOMESTIC HOT WATER



DOMESTIC HOT WATER SYSTEM

A separate AO Smith gas-fired storage water heater provides hot water services (HWS) to the school and kitchen. All hot water draw-off points accessible by the children have been fitted with blending valves. HWS storage temperature is 60 °C, the HWS circulation temperature 55 °C and the blended HWS supply temperature is 43 °C. See drawing nos. 3322/M/530 & 531 for details. Total installed plant capacity is 56.5 kW with an installed power density of 51 W/m^2 based on the gross floor area.

Safety features: a small pump circulates the stored water on a regular basis to avoid legionella.

Energy/water saving features: The HWS system can run independently from space heating to ensure good summer efficiencies

VENTILATION

Natural ventilation is provided via openable windows from the north and south facades and through light wells over the corridors and classrooms. The windows at the top of the light wells are manually controlled by the staff via winding mechanisms. Good use of these top lights will result in good ventilation as they provide an exit for warmer air.

Extract ventilation is provided by seventeen small extract fans throughout the school to ventilate toilets, cloakrooms and a shower. Classroom WCs are controlled by a single infra-red presence detector with run-on timer. Classroom cloak areas have local extract ventilation controlled by a humidistat to detect drying requirements. Other local extract fans are provided with manual speed control to the staff room, food technology hood and the hall. The kitchen hood extract system is controlled manually by the catering staff.

LIGHTING

Lighting is generally tubular or compact fluorescent throughout, supplemented by daylight from the general glazing and via the light wells in the roof. The classrooms are mainly 3 x 14 watt high frequency fluorescent fittings. The corridors and general areas are mainly 3 x 18 watt fluorescent fittings. The lighting installation provides the recommended illumination levels of the CIBSE Code for Lighting. A stage-lighting bar has been installed in the main hall area. Much of the lighting is controlled with presence detectors (including the main hall lighting) in conjunction with wall mounted switches. External bollard lighting has been installed controlled by a time switch and photocell. The lighting layout is shown in drawing nos. 3322/E/630 & 631

An emergency lighting system rated at 3 hours duration has been installed comprising batteries/inverter units mounted within the general lighting luminaires, supplemented by self-contained battery operated 8 W fluorescent luminaires.

9 Overview of controls/BMS

(Not more than two pages)

A York BMS outstation is located in the main plant room at the east end of the building. This controls all the items of plant in the boiler room, i.e. boilers, storage water heater and pumps. This provides optimum start/stop time control and weather compensated temperature control on the boilers and the two variable temperature heating zones. The BMS central supervisor is located in County Hall, Westbury. The lighting is not controlled by the BMS. The main energy meters are not connected to the BMS.

Automatic checks are carried out via the BMS:

- Daily verification that LPHW and heating water circuits flow and return temperatures are being held within the design limits.
- Daily verification that pump suction and delivery pressures are being held within the design limits.
- Daily check plant room ventilation systems are operational.

Authorised personnel

Access to BMS/controls is restricted to Westbury CC staff and their maintenance contractors.

10 Occupant information

(This information should be photocopied and passed on to the building occupants, particularly new staff members)

(Not more than two pages)

Your working environment

In order to achieve a good working environment it is important that you understand how to control the building services in your space.

Heating: Your school is heated by boilers and radiators with fan convectors in the main hall. The system is divided into three zones: north, south and hall. The caretaker can adjust the temperature by a few degrees. You also have some control using the thermostatic radiator valves (TRVs) on each radiator.

Set the temperature you require and then leave it for a while to see how the temperature settles down. Make minor adjustments if necessary but don't alter them too much as the system may over-compensate and you will get too hot/cold. Avoid overheating as this wastes energy and the resulting CO_2 emissions contribute to global warming.

Ventilation: Your school has openable windows on the north and south walls which can be used for ventilation. These should be used in combination with the openable windows (top lights) at the top of the light-wells in the classrooms and corridors. Air can then pass from the north/south facing windows up through the light wells. If you don't open the top lights then ventilation will not be as good as these allow airflow across the office in summer, but should be kept closed during winter.

Shading: Simple internal blinds can be used to prevent glare although these are unlikely to prevent overheating on sunny days.

Lighting: The fluorescent lighting is controlled by wall switches. Only switch the lights on that you need and make sure you switch them off before you leave. In order to save energy the lights in toilets and cloak rooms switch ON when they detect someone moving and OFF when nobody is in the room.

Computer equipment: The more that PCs, printers etc. are left on unnecessarily, the more likely that your space will overheat. This also wastes energy – make sure any energy saving features are turned ON to power down equipment automatically after a certain time.

Simple energy 'dos and don'ts'

- Avoid blocking radiators or ventilation grilles with furniture and books as this will result in a lack of heating/ventilation.
- Set thermostats to the required temperature then leave them alone. Do not use them as ON/OFF switches.
- Set thermostatic radiator valves (TRVs) to the required temperature then leave them alone. Do not use them as ON/OFF switches. If you turn these fully OFF on Friday night then don't expect heat on Monday morning.

- Do not overheat your space as this increases running costs and causes extra emissions of CO_2 into the external atmosphere, contributing to global warming.
- Only switch the lights ON as and when necessary as they result in significant emissions of CO_2 into the external atmosphere, contributing to global warming.
- Shut windows at night for security purposes and to prevent heat loss that could make your space cold when you come in the next day.
- Ensure that PCs, printers etc. are not left ON unnecessarily and have any energy saving features enabled as this will prevent your space from overheating and save energy, thereby reducing CO_2 emissions to the external atmosphere.

RESTAURANT/KITCHEN

Your working environment

In order to achieve a good working environment it is important that you understand how to control the building services in your space.

Kitchen extract: is controlled by a manual switch on the wall next to the main hobs. The hob burners won't light unless you switch this on for safety purposes. To save energy, make sure you only switch this extract system ON when you need it and switch it OFF before you leave.

Hobs and ovens: Only switch hobs and ovens ON when you need them in order to save energy.

Fridges/freezers: Keep the doors closed as much as possible in order to save energy

Dishwasher: Make sure the dishwasher only operates with full racks – half loads will waste energy

Hot water: Only use the hot water you really need in order to save energy

Save energy

Kitchens can use significant amounts of electricity, gas and hot water. Controlling the kitchen equipment properly will help reduce running costs and avoid extra emissions of CO_2 into the external atmosphere that contribute to global warming.

11 Metering, monitoring and targeting strategy

(Not more than three pages)

Metering schedule

The following provides a list of meters and design estimates of the likely end use consumptions. See CIBSE TM39: *Building energy metering,* for an example, including how to arrive at a good metering schedule. CIBSE TM22: *Energy assessment and reporting method* also provides a means of assessing energy use in buildings.

Total estimated incoming fuel			Electricity: *22,240 kW·h/yr* Gas: *133,440 kW·h/yr*					
Energy			**Meters**		**Method**		**Meter location**	
Type of incoming energy	Main end-use	Estimated end-use consumption (kW·h/yr)	Meter no./code	End use/ area/system/ circuit or tenancy to be measured	Measurement method and calculation where appropriate	Estimated consumption through each meter (kW·h/yr)	List of meters	Location
Electricity	*Incoming*	*22,240*	*EM1*		*Direct meter*	*22,240*	*Main*	*Outside main plant room*
	Lighting	*8,896*	*EM2*	*Lighting circuit*	*Direct meter*	*8,896*	*Lighting circuit*	*Electricity distribution cupboard*
	Pumps and fans	*7,784*	*EM3*	*Plant room electricity*	*Hours run meter*	*7,784*	*Plant room electricity*	*Plant room*
	Catering electricity	*3,336*	*EM4*	*Kitchen electricity*	*Direct meter*	*3,336*	*Kitchen electricity*	*Kitchen*
	Other electricity	*2,224*	*Unmetered*					
Gas	*Incoming*	*133,440*	*GM1*		*Direct meter*	*133,440*	*Main*	*Meter box in front garden*
	Space heating	*94,520*	*GM2*	*Boiler gas*	*Direct meter*	*94,520*	*Boiler gas*	*Plant room*
	Hot water services	*27,800*	*GM3*	*Water heater gas*	*Direct meter*	*27,800*	*Water heater gas*	*Plant room*
	Catering gas	*11,120*	*GM4*	*Catering gas*	*= GM1 - GM2*	*11,120*		

Read the meters annually and quarterly and log the readings on the meter reading pro forma in a separate file. From these readings add up the energy consumption for each end-use for the year and log these in the section 12.

12 Building performance records

(Not more than three pages)

Overall annual energy performance

Summary of overall annual electricity, fossil fuel consumption and CO_2 against simple benchmarks. Examples of these calculations and tables are shown in Good Practice Guide GPG 348: *Building log books – a user's guide*. A copy is included on the CD-ROM accompanying CIBSE TM31; printed copies are available from (www.thecarbontrust.co.uk).

Building energy performance for period from *[date]* to *[date]*

Based on a gross floor area of *[number]* m^2

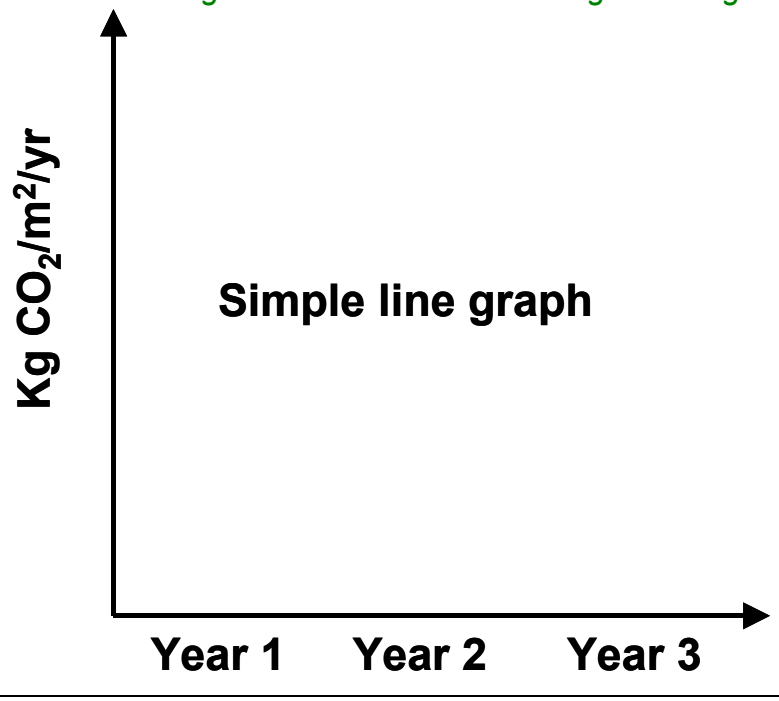
Fuel	Quantity	(A) (kW·h)	(B) CO_2 ratio	(C) (kg CO_2)	(D) Actual (kg CO_2/m^2)	(E) Design estimates (kg CO_2/m^2)	(F) Good practice benchmark (kg CO_2/m^2)
Oil	*N/A*		*0.27*				
Gas			*0.19*			*22.8*	*22.8*
Electricity			*0.43**			*8.6*	*8.6*
TOTAL							

* This value may change year to year due to changes in the mix of electricity generation plant. Current figures are available from the Energy and Environment Helpline (0800 585 794) or www.actionenergy.org.uk

Ensure that actual consumption figures do not include estimated bills and ensure they relate to a full exact 12 month period. (If not then record actual and adjust by number of days missing/extra). Use the total gross floor area shown in section 5. Multiply column (A) by column (B) to get (C) then divide by treated total building floor area to get (D) for comparison with benchmarks in columns (E) and (F). One overall performance indicator can be established by totalling column (D). Avoid adding column (A) as the fuels have different costs and CO_2 factors.

Historical building performance graph *(in graphical form)*

Facilities manger to insert a graph of the above figures over time to track performance against a benchmark and original design estimates.



CIBSE TM22: *Energy assessment and reporting method* provides software to help assess building energy performance using either a simple or a detailed approach. This includes benchmarks for a variety of buildings. A wider range of benchmarks is available in the series of Energy Consumption Guides produced by the Carbon Trust (www.thecarbontrust.co.uk), e.g. ECG019: *Energy use in offices*, and CIBSE Guide F: *Energy efficiency in buildings*.

Asset and operational ratings

Insert the asset and/or operational ratings taken from any energy certification process.

Date	Asset rating	Method used	Operational rating	Method used

Energy end use comparison

Annual summary of actual metered consumption per square metre and the design team's estimates versus benchmarks broken down by main end-uses. Examples of these calculations and tables are shown in Good Practice Guide GPG 348: *Building log books – a user's guide*. A copy is included on the CD-ROM associated with CIBSE TM31; printed copies are available from (www.thecarbontrust.co.uk).

Building energy performance for period from *[date]* to *[date]*

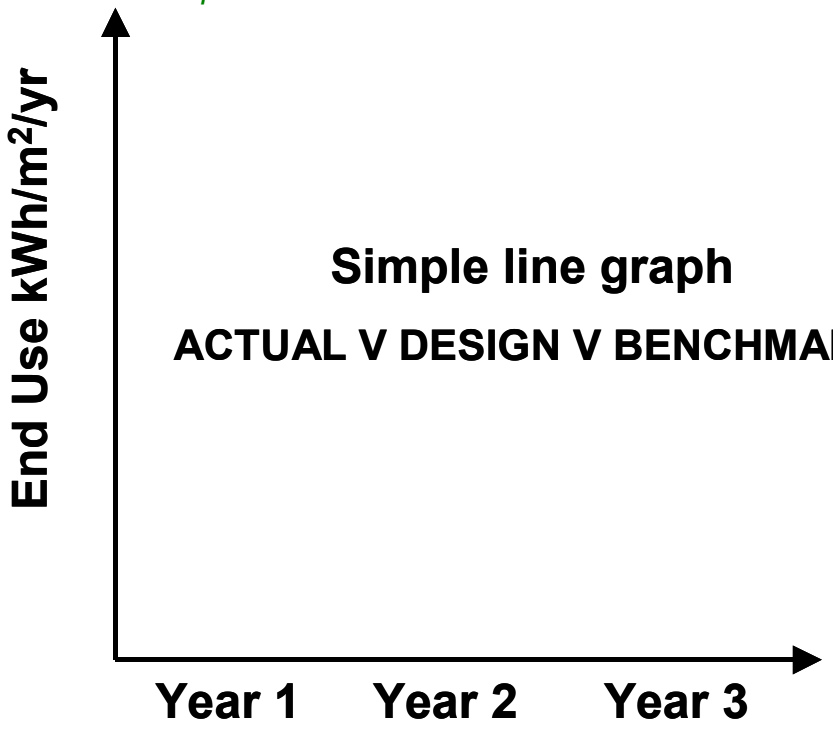
Based on a gross floor area of *[number]* m^2

Fuel type	Main end use	**Actual** Metered incoming consumption ((kW·h)/yr)	**Actual** Sub-metered main end use energy consumption ($(kW·h/m^2)$/yr)	**Design estimates** Main end use energy consumption ($kW·h/m^2$)/yr	**Good practice benchmark** Main end use energy consumption ($(kW·h/m^2)$/yr)
ELECTRICTY	*Incoming*			*22,240*	*22,240*
	Lighting			*8,896*	*11,120*
	Pumps and fans			*7,784*	*6,672*
	Catering electricity			*3,336*	*2,224*
	Other electricity			*2,224*	*2,224*
GAS	*Incoming*			*133.440*	*140,112*
	Space heating			*94,520*	*98,968*
	Hot water services			*27,800*	*28,912*
	Catering gas			*11,120*	*12,232*
ELECTRICTY	*Incoming*			*22,240*	*22,240*
	Lighting			*8,896*	*11,120*
	Pumps and fans			*7,784*	*6,672*

Keep the fuels separate as they have different costs and CO_2 emissions

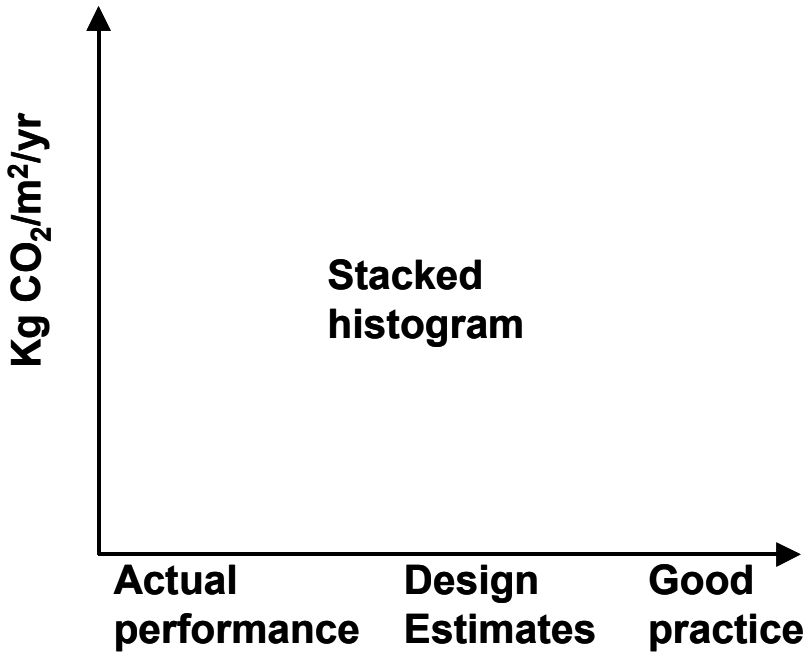
Annual graph of end use breakdown *(in graphical form)*

Facilities manager to insert a graph of the above figures as per Energy Consumption Guide ECG019[1] or CIBSE TM22[2] to compare end use performance with end use benchmarks etc. See Good Practice Guide GPG 348[3] for examples.



Historical graph of end-use performance *(in graphical form)*

Facilities managers to insert a graph of the above end use figures over time to track performance against end use benchmarks etc. See Good Practice Guide GPG 348[3] *for examples.*



References

(1) *Energy efficiency in offices* Energy Consumption Guide ECG19 (The Carbon Trust) (2000) (www.thecarbontrust.co.uk)

(2) *Energy Assessment and Reporting Methodology – Office Assessment Method* CIBSE TM22 (London: Chartered Institution of Building Services Engineers) (2003)

(3) *Building log books — a user's guide* GPG 348 (The Carbon Trust) (2000) (www.thecarbontrust.co.uk)

13 Summary of maintenance

(Not more than two pages)

Emergency maintenance action

Emergency contact name 1
Mrs G Jones
48 Oldfield Road
Wickford
Westbury
XX3 4JJ
01234 567890

Emergency contact name 2
Morse & Co Ltd
58 Marconi Way
Latham
Westbury
XX3 5YY
Tel: 09654 109283
Fax: 09654 109284

Maintenance overview

Morse & Co are responsible for the maintenance of the main plant, i.e. boiler, water heater, pumps. The remainder of the maintenance is carried out by the caretaker.

Maintenance review

Review period ***[period]*** **Signed:**	**1. Are you reasonably satisfied with the maintenance on this system? (Yes/No)**	**2. Is this system capable of working in all the required modes? (Yes/No)**	**3. If not, is this due to poor maintenance? (Yes/No)**	**Comments/problems?** e.g. maintenance not carried out (give reason) Indicate any major changes to the general arrangement for maintenance including any changes in maintenance regimes or contracts
Lighting				
Fans				
Pumps				
Cooling				
Space heating				
DHW				
etc.				

Maintenance/plant failures

Facilities manager to insert a summary of any major plant failures and how these relate to the maintenance regimes or contracts. This should describe what happened, when, why and what action was taken to overcome the problem.

14 Results of in-use investigations

(Not more than one page per investigation)

Defects liability work

The staff toilet extract fan was replaced during the defects liability period due to a fault on the fan.

Post occupancy evaluations

Facilities manager to insert a summary of any post occupancy evaluations, e.g. investigations of energy performance and/or occupant satisfaction.

Surveys

Facilities manager to insert a summary of results from any maintenance, condition or energy surveys.

Inspections

Summary of results of boiler or air conditioning inspections required under the EU directive 'Energy Performance of Buildings' and any actions taken

Appendix: relevant compliance and test certificates

This appendix should act as a focal point to hold copies of all relevant key certificates/tests:

- commissioning completion certificate