

PROPOSAL –Remodelling and extension to increase from 3FE to 4FE
(Mechanical services works)
Fielding Primary School,

1.0 Site Investigations

1.1 Mechanical Services Survey

BIS have obtained an extract showing the gas mains located in the Wyndham roads the main gas feeder meter room is located on same grid. This plan indicates a 100mm gas main from Wyndham road going into main meter room located at PED entrance side, and than running through underground to B01/C plant room.

There is another gas meter in the boiler house,

1.2 Asbestos Survey

A Type 3 asbestos survey of the buildings to be demolished will be carried out prior to demolition. As envisage by Environmental Regulations

1.3 Renewable Energy Supplies

BIS will comply with both local planning policy and the Mayor's Energy Strategy proposal 13 - of ensuring that developments over a 1000m² over the value of £500,000 generate 10% of their energy needs (power and heat) from renewable energy where feasible.

Mini CHP boiler is included in the feasibilities design to Supplementary feed to the B01/C extension first floor to cater the need of enhance heating capacity requirement of system.

The scheme has also included the use of ground source heat pump in KS1 premises to comply with the Mayor's Energy Strategy proposal in the feasibility scheme design.

1.4 Aircraft Noise

Since Fielding Primary School is fall within London Borough of Ealing's Environmental Department's aircraft noise control zone. Therefore all teaching /learning room has been design for forced ventilation system

Additional sound proofing to windows beyond building regulations will also be required. in accordance with the Management of Asbestos regulations.

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1.5 Sustainability

Babcock will appoint a BREEAM approved consultant to comply with LBE's requirement of achieving 'Very Good' sustainability rating through Building Regulations

2.0 Mechanical Services

2.1 Mechanical Plant and Equipment

Mini CHP Boiler is intended to performance life of 15 years

Under-floor heating to give an operation life of 25 years.

The remaining existing Main plant to give a operation life expectation 11 years, if will maintain properly and pumps etc 6 years.

All new radiators and piping are for 15 years

Standalone controls are for 5 years.

3.0 General Design Criteria

All earlier design formats is being followed to have symmetry system layout

4.0 Boilers

*Three Existing main Hoval boilers each having 184KW Out put load has been designate to cater the heating load of the all new extension area.

However one more 100kw Mini CHP boiler needs to be installed parallel with the existing system to supplement the enhance capacity of heating load due to building expansions at B01/C

All primary heating circulation pumps will be adjusted according to the new static head on the flow

*Actual Boiler operating load on existing area need to ascertain.

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5.0 Heating System

The heating to B01/B KS1 will be feed from new layout piping route B01/A, assembly hall, and site manager room to be link up with the main existing loop pipes, and BO1/C will be connected completely new main riser and branch pipes.

The staff room extension heating requirement will also be taken care from existing main boilers with modification in the main run pipes . The classrooms of KS1 will be provided with under-floor heating. The under-floor heating will be supplemented by the Ground Source Heat Pumps

The 2nd floor of B01/C presumable will be fed through the same main source of the heating, and type of radiator will be same as in ground floor

The new heating system shall consist of 3 circuits - one constant temperature circuit and two variable temperature circuits.

The variable temperature heating circuits shall serve the LST radiators in all areas and underfloor heating circuits to KS1.

6.0 Radiators

B01/B KS1 area corridor and all others extension will be LST type

All new and replacement radiators in BO1/B KS1 corridor area, BO1/A, BO1/C, Staff extension, and all others extension and old area (where Old radiator are installed) shall be low surface temperature type (LST), at low level, and the convector type,

Each radiator shall be fitted with a direct acting TRV with tamperproof cover and shall meet the current British Standards.

7.0 Underfloor Heating

Only BO1/B KS1 class room shall be provided under floor heating piping.,

8.0 Domestic Water Heaters

Hot water to KS1 and staff extension will be generated from a separate indirect gas fired combination hot water heater located in the designated area. All WHB and Shower outlets will have blending valves to provide hot water at 42 degrees.

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The hot water to staff sink and others area will be fed through the existing hot water system where applicable.

9.0 Cold Water Supply

All existing cold water connection will be replaced by new main line run through ceiling where applicable ,the flow than adjusted according to the revised requirement.

Building B01/C will be feed by complete new system which includes all accessories Valve and fitting confirming the energy saving pressure vessel system.

The new scheme will provide 2 branch off Cold Water sub divided Mains Supply (CWMS), one for cater KS1 ,Staff extension ,B01/A and existing peripheral area's and other cater for BO1/C extension existing ,assembly dining area's All other existing none operational pipe /supplies will be abandoned.

10.0 Ventilation

Since Fielding Primary School is fall within London Borough of Ealing's Environmental Department's aircraft noise control zone. so therefore all /teaching learning room has been design for forced ventilation system

However in the staff entrance and others related area will be account by natural ventilation.

The ground floor classrooms will be ventilated using 'forced draft ventilation. System All classrooms will have a minimum of 8 air changes/hour.

ICT, Library, staffroom and offices will have a minimum of 5 air changes/hour.

11.0 Toilets Fresh Air Supply and Extract

All toilet extract system will be force ventilation base. However some toilet will be design for both supply and extract system as per application.

Extract ventilation through the lavatories are to be designed to achieve at least 10 air changes per hour.

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12.0 Controls

The LST radiators shall have c/w a type 'VK3' remote sensor thermostatic radiator valve (TRV) shall meet the current British Standards.

All radiators shall have vandal resistant thermostatic radiator valve on the flow connection (as described above) and a regulating type lock shield valve on the return connection.

BIS will also recommend having DATA LOGGER to be installed in plant room .so whenever any operation data of the system requires,

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this can be down load from main Loggers. This system will enable to have all operational data of system with out any complicated software Knowledge.

At from the easy to use system operations this system is plug in to any others system with out assign any other software integration.

13.0 Fire Protection Services

All extension area to be added with existing Fire alarm system to controls centralise alarm indication.

If the existing system does not have an adequate capacity to integrate with new point, than replacement be made with extendable module system.

14. Ground Source Heat Pump

This plan has included new ground source heat pump (GSHP) system, in BO1/B KS1 utilising a closed loop borehole ground heat exchanger, together, with a heating only, water to water heat pump, two buffer tanks and a ground loop circulating pump.

This is as per Mayor's Energy Strategy proposal 13 to provide a contribution towards the renewal energy requirements of the overall building energy use.

Energy meters will installed on the electrical input to the heat pump, on the output to the heating system and on the thermal input to the heat pump from the ground loops.

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15.0 Rainwater Harvesting

The scheme has provision for one storage tank at BO1/C area near plant room for harvesting rainwater from the roofs and using it to flush the WC's.

The location of this tank will be determined after soil report.

Remarks

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- ✓ This document has been prepared for brief description of works on the basis of which appraisal and cost are based; any changes in the conceptual design element will affect the mechanical works cost.
- ✓ BIS will comply with both local planning policy and the Mayor's Energy Strategy proposal 13 - of ensuring that developments over a 1000m2 over the value of £500,000 generate 10% of their energy needs (power and heat) from renewable energy where feasible.
- ✓ Fielding Primary School falls within London Borough of Ealing's Environmental Department's aircraft noise control zone. Additional sound proofing to windows beyond building regulations will also be required however we have taken into account this aspect while selecting ventilation system of the require area's.
- ✓ Babcock will appoint a BREEAM approved consultant to comply with LBE's requirement of achieving 'Very Good' sustainability rating for this extension works.
- ✓ This conception brief design works are based on the information available and as per project briefing
- ✓ The content of the report does not underlined or identify any specific H & S risk issue .please refer further report for details
- ✓ Temporary water connection will be included in the temporary accommodation.