SECTION THREE

PARTICULAR SPECIFICATION – MECHANICAL

3.1 GENERAL

The Performance Specification and associated Tender Drawing cover the design intent (for the Contractor to develop), supply and installation of mechanical services, delivery to site, erection, installation and testing and commissioning of all new mechanical and electrical services. Including all materials and equipment specifically called for or implied as necessary, including the use of all skilled and unskilled labour necessary for the complete installation of the mechanical and associated electrical services installations.

All temporary works, connections, reconnections, draining, refilling and general maintenance and operation of the mechanical and associated electrical services during the contract period, whether specifically called for or implied, and all final testing, regulations and commissioning, and handing over of the mechanical and associated electrical installations ready for immediate use shall also be included.

The Contractor must allow for the design, supply and installation of the entire mechanical services systems, they must also allow within their Tender for repeated draining, cleaning, filling, and dosing of the existing installations where this is necessary for the progress and programme of the works, plus all required phased hand over of the project.

Where appliances or equipment is named within these documents, it is to indicate the Employer's preference and to illustrate a standard required to meet the requirements of Regulations and guidance notes that meet good practice. The Contractor will be deemed to have included for the requirements of this Clause in their Tender.

It will be impossible for a correct tender to be submitted without each Tenderer attending site. Access to site can be arranged via the contact details in Clause 3.7. The Contractor will be deemed to have included for the requirements of this clause in the tender documentation.

The following information applies to the works required at Bishopshalt School, Royal Lane, Uxbridge, Middlesex, UB8 3RF for the installation of new hot and cold-water pipework and associated works.

Bishopshalt School has a mixed age of students 11-18 years, and is located in Hillingdon, comprising classrooms, activity rooms, dining hall, WC areas, staff areas and kitchen. The school was opened as a school in 1907 and dates back some time prior. The School and building comprises several buildings from the original Manor House, a multi storey building with a tank room at roof level. Extensions over a period from c1920 to c1950 to the main building, with maths and science blocks added c1970. The most recent additional buildings for the maths and music blocks added in stages to c2000, to make up the present Schools various buildings.

Cold-water services within the school are provided by a mix of mains feed and cold-water down service, which are supplied by cold-water storage tanks located in the various tanks and the roof top tank room and in the roof space above the 6th form block. There are incoming main cold-water pipework rising from below ground in several areas throughout the school, to feed the various tanks for stored water as a gravity fed potable water systems. There are also some areas connected as direct mains water fed, water services being connected directly to some outlets and some appliances. It was not possible to trace all water mains connections and many of the down services water supplies without an intrusive and destructive survey of the various areas and buildings ducts and void spaces, with some of the older supplies concealed within the fabric structures of the building.

The cold-water within the school runs within the ceiling voids etc. and at high level in common access and corridors, and many are concealed, with several branches serving the WC areas, classroom sinks and the cleaner's sinks, and water services within the kitchen.

There are sections of the cold-water distribution pipework original to the construction of the building, we are advised there may also be some original Lead pipe work concealed within the fabric of the building. There are also extensive amounts of original galvanised steel pipe work within the existing pipework infrastructure, with some newer sections of Copper pipework added for incidental repairs of the galvanised pipe systems for replacement and extensions of the pipe sections.

Many of these sections of the pipes, hot water and cold water services, are now at end of the economic life due to corrosion and scale deposits as would be expected for the age and mixture of pipe types as seen within the various building forming the School.

Where TMVs have been installed, the existing galvanised steel pipework has been retained in some sections, with local connections to the TMV completed in copper pipework. There are also dead-legs in the schools' hot water and cold water pipe systems, where the redundant cold-water down service pipework has been left in place, equipment removed etc. these are adding to the high risk of legionella or other bacterial proliferation problems within the communal water system circuits.

There is a mix of material types for pipes for mains feed supplies, Hot Water and Cold Water within many of the later constructed buildings and classrooms. These pipe work systems in some areas are also routed within some voids and ducts and at high level in some areas.

There is a more recently installed water mains supply services, installed in Blue MDPE pipe. The MDPE pipe installations are to be assessed, where visible but should not be programmed as part of the project works to upgrade and replace older water supplies.

(Noted the Blue MDPE water service pipe is next to an exposed Yellow MDPE Gas supply pipe, the gas pipe needs to be protected as soon as possible, reported on site at the time of the survey)

Hot water is provided by a mix of unvented indirect Calorifiers and some Direct Fired water heaters, also a limited number of Point of Use electric type water heaters, for some of the more remote areas of the school buildings. There is a mix of mains fed water services and down service, gravity fed water supplies. Hot water pipework extends from the Calorifiers, Direct Fired Water heaters to supply the various hot water outlets, washbasins and Kitchen sinks throughout the schools various areas. There are many areas of Hot Water pipe work installed in Galvanised Steel pipe systems, mixed with Copper tube similar format to as seen for the Cold Water pipe systems.

The blended hot water pipework from the thermostatic mixing valves to the washbasins shall be stripped out and replaced with new copper tube pipework to reduce the risk of galvanic action, dezincification and further corrosion. Shower heads for the Boys and Girls changing rooms, and the taps in many areas were heavily contaminated with scale deposits, these are to be replaced.

There are many sections of the Hot water distribution pipe systems that do not have secondary circulation systems. And many long legs for infrequent use outlets, hot water and cold water also with dead leg sections creating an elevated risk for contamination by Legionella pneumophila or other bacterial proliferation. The Hot Water distribution pipe work is to be removed and replaced for the areas where the Galvanised and Copper tube materials are mixed or pipe work systems are likely to be Galvanised and are unseen concealed in the buildings fabric or inaccessible ducts and voids. The secondary hot water circulation system is to be extended as far as reasonable possible.