

**SPECIFICATION ASSOCIATED WITH
MECHANICAL ENGINEERING SERVICES**

REFURBISHMENT & ADAPTIONS PROJECT

at

**NETHER ALDERLEY PARISH HALL,
CHURCH LANE,
OFF CONGLETON ROAD,
NETHER ALDERLEY,
CHESHIRE.
SK10 4TW.**

Prepared by:

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SECTION 1.

GENERAL CONDITIONS & PRELIMINARIES

SECTION 1.

GENERAL CONDITIONS & PRELIMINARIES.

1.1 CONTRACT

The general conditions of contract as far as the Mechanical Contractor is concerned will be in accordance with the Main Contract terms and conditions provided within the invitation to tender. The Mechanical Contractor will be expected to enter into a Sub Contract Agreement under this form with the successful Main Contractor.

1.2 SCOPE OF WORKS.

The scope of works covered by this specification is for the supply and installation of mechanical services associated with the Refurbishment & Adaptions to Nether Alderley Parish Hall.

The definition of “works” shall include the provision of new mechanical services as shown on the drawing and shall mean a complete installation including supply, installation, testing, commissioning, setting to work including full instructions to the Client as to the operation of the plant, equipment and controls.

1.3 SITE VISIT.

The prospective tenderer is advised to visit site to ascertain the full extent and nature of the works and to translate the information contained within this specification and detailed on the drawings to suit the particular implications of the site in general. Failure of the tenderer to acquaint himself fully with site conditions shall not form the basis of additional claims for monies whatsoever. Arrangements to visit site should be made by as detailed within the tender invitation.

1.4 DOCUMENTATION.

To assist the preparation of a tender bid, the following documentation is provided:

- a) Tender Drawings

The following drawings which accompany this specification to form the tender package are to be used at this time for tendering purposes only. They are diagrammatic only and must be read in conjunction with the specification. Site dimensions must not be taken from Tender drawings. The tenderer must include for all necessary fittings, offsets, components, bends, parts etc., as may be required to provide a full, comprehensive services installation even though they may not be indicated on the drawings due to their scale.

102.19.M1 – Existing mechanical services

102.19.M2 – Proposed heating services

102.19.M3 – Proposed H & C water services

b) Specification

Tenderers shall comply fully with the requirements of the Standard and Particular sections of the specification. Any anomalies or queries noted by the tenderer shall be relayed to the Consulting Engineer at tender stage.

c) Tender Breakdown & Form of Tender

A copy of the Tender Breakdown & Form of Tender, duly completed in all respects and signed, shall be submitted by the tenderer with the tender bid.

1.5 CO-ORDINATION OF SERVICES.

The mechanical services contractor shall be fully responsible for the co-ordination and integration of his installation with the electrical services and the structure/proposed internal arrangement of the building. In addition the mechanical contractor shall be responsible for the co-ordination of all activities and management of Sub-Contractors.

1.6 SCHEDULE OF RATES WITH QUANTITIES.

Within seven days of being notified that his tender bid is being considered for acceptance the sub-contractor shall submit a fully priced and detailed schedule of rates with quantities, the total price of which is to correspond with the tender amount. The schedule will be used, where applicable, for the preparation/pricing of variations.

1.7 WORKING PROGRAMME.

The mechanical contractor shall arrange his works to comply with an agreed programme of works to enable the areas to be completed in a phased areas as agreed. The contractor shall issue a draft programme with his tender return followed by a more detailed programme after order placement for discussion prior to any works being undertaken.

1.8 COMPLIANCE WITH REGULATIONS.

All parts of the installation shall comply with the following regulations current at the date of tender:

- a) Building Regulations – Current Edition at the time of tender.
- b) Statutory requirements including the Clean Air Acts.
- c) The Health and Safety at Work Act, 1974.
- d) The I.E.E. Regulations (17th Edition).
- e) Regulations under the electricity at work acts.
- f) Regulations and requirements of the Building Control/Fire Officer.
- g) British Standards ruling at the time of tender.
- h) C.I.B.S.E. guidance notes and codes of practice
- I) The Water Regulations 1999.
- j) The Gas Regulations 1998.
- k) The Current CDM Regulations
- m) Health & safety Plan.

1.9 BUILDERSWORK & ELECTRICAL WORKS.

The mechanical contractor shall be responsible for providing all necessary information for builderswork and electricians works to enable the services to be installed and to enable his sub-contractor to carry out the work. This shall apply to bases, holes through walls, floors, roofs etc. trenches, boxings and any other specific items. In addition the mechanical contractor shall be responsible for the co-ordination of all activities and management of Sub-Contractors.

1.10 DEFECTS LIABILITY PERIOD.

The sub-contractor shall be responsible for the correct operation of the works for twelve months from the date of practical completion and shall make good at his own expense any defects which arise, fair wear and tear excepted. The sub-contractor shall inform the Consulting Engineer in writing of his final practical completion so that handing over of the works and commencement of the Defects Liability Period can begin.

1.11 OMISSION OF WORKS.

Omission of the works whether in part or whole shall not entitle the contractor to claim for anticipated overhead recovery and/or loss of profit.

1.12 OPERATING & MAINTENANCE INFORMATION.

The sub-contractor shall include for instructing the Client's representatives on the operating and maintenance of the installations and shall provide three copies of "as installed" drawings and operating/maintenance manuals at the time of handover. All documentation should be in line with CDM regulations and should be produced for approval prior to final issue at handover stage.

SECTION 2.

PARTICULAR SPECIFICATION REQUIREMENTS

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2.1 EXISTING SERVICES.

Existing services relating to the construction of the new extension are as follows;

- (i) The external adjacent gas supply to the Parish Hall which currently serves the Church, but is going to be connected into with a separate metered connection to serve the Parish Hall.
- (ii) The external MCW supply entering the existing ground floor Toilet area.
- (iii) The existing electric heating units & HWS cylinder as shown on the existing drawing.

The works required to the external gas main are covered by a provisional sum on the tender summary.

The works required to the external MCW supply, ie. for exposing this and connecting a new 25mm MDPE supply / valved & metered connection into shall be included within the Contract sum.

The works required to the existing electric heating & HWS systems apply to their complete stripping-out & removal from site.

It is therefore essential that the contractor visits site prior to the submission of his tender to ascertain the full extent and nature of this work.

2.2 NEW HEATING SOURCE.

New heating services are to take the form of a wall mounted Worcester gas 'combi' boiler as shown on the drawings. The boiler type shall be a model GR8700iW40.

This installation shall be in complete compliance with the Gas Regulations with the unit being commissioned and registered for Warranty by the boiler manufacturers or their approved registered Contractor.

2.3 HEATING INSTALLATION.

The heating installation shall include for a radiator system and an underfloor heating system as shown on the drawings, complete with main flow & return pipework to the underfloor heating manifold, floor and edge insulation, manifold mixing / pump arrangement, room sensors and commissioning.

The underfloor heating shall be carried out by messrs GeoTek as per their quotation ref – NM/GEO/9568 rev1, contact Nick Meyer – 0870 850 2755.

Radiators shall be Zehnder multi-column type with supports and valved connections as shown on the drawing. All radiators shall be provided with TRV's & LSV's. The contractor shall be responsible for checking that the specified radiators can be installed in their intended location **prior to ordering**. The radiators shall be provided in agreed RAL colours to be confirmed by the Consulting engineer.

2.4 PIPEWORK SERVICES.

All pipework shall be graded correctly so that the apparatus is completely vented and shall be run in such a manner as to allow for expansion and contraction to take place. Pipework must not be fixed tight into walls or structure in any manner, which might prevent expansion from taking place.

The pipework shall be installed in a neat manner throughout and be of materials as indicated below unless specifically noted otherwise.

LPHW Heating.	-	Shall be of light gauge copper tube to BS 2871, Part 1, Table X
Hot, Cold, Mains Water	-	Shall be of light gauge copper tube to BS 2871, Part 1, Table X
Gas pipework	-	Shall be installed in black heavy weight tubing with malleable screwed fittings.

Wherever practicable, bending and setting of pipes shall be adopted with a view to securing economy of fittings and labour. No bend or curve in any pipework shall be made so as to materially diminish or alter the internal diameter in any part.

All open ends of pipes shall, when left unattended, be plugged or capped off. Shavings, paper, rags or similar materials will not be permitted. The Contractor shall ensure that no obstruction is left in any part of the installation.

Pipework on the Domestic Water Installation shall terminate at all draw-offs unless specifically noted otherwise. An isolating valve shall be fixed for each fitting or range of fittings served by a particular draw-off and all final connections included.

PIPE FITTINGS

LPHW Heating Pipework - All fittings on water services copper pipework shall be manufactured from either gunmetal or copper and under no circumstances must brass fittings or brazing, which is subject to dezincification, be used.

Copper Pipework - All fittings on water services copper pipework shall be manufactured from either gunmetal or copper and under no circumstances must brass fittings or brazing, which is subject to dezincification, be used.

Fittings shall be of the Yorkshire "Potable" range where used on mains cold water and domestic hot water services.

Generally all joints shall be made with capillary fittings manufactured by the Yorkshire Imperial Metals Company Limited, with larger sizes either brazed or bronze welded. Unions shall be provided at 15 metre intervals in all except pipework exposed within rooms.

All gas pipework shall be installed similarly but with 'Heavy' grade mild steel & malleable screwed fittings.

All pipework must be adequately supported and arranged to accommodate pipe movement caused by thermal changes. Generally, allow the flexure at changes in direction and allow for movement at branch connections.

All pipework shall be graded to facilitate air venting and draining down and must be fitted with air vents and draincocks at all high and low points respectively.

2.5 VALVES AND COCKS

Bronze wheel head gate valves shall be fitted on flow pipework with lockshield type valves on the return. Draincocks shall be fitted at all low points with hose union connections. Valves shall be as manufactured by Hattersley Newman Hender Ltd., or approved equivalent.

Stopcocks shall be manufactured by Yorkshire Imperial Metals and shall be of all gunmetal construction with easy clean cover, Fig 514 DZR or 514 GM.

All exposed valves serving sanitary ware shall be "Ballofix" type with chromium-plated finish.

Wheel Valves	fig. 33X DZR
Lockshield Valves	fig. 33XLS DZR
Draincocks	shall be fitted as indicated on the drawing and at all low points on the system. They shall be 15 mm diameter, gunmetal lockshield to BS 2879 Type "A".
Commissioning Valve	fig. 2432 DRV/MS
Gas	fig. 100

Water Service Valves
Mains Cold Water Yorks Fig. 514GM or 514DZR

Automatic air-vents shall be provided on all high-points of the system, and shall be of the Flamco type or equal and approved.

2.6 GAS INSTALLATION.

A new gas meter is to be provided by others in the location indicated, from where the Contractor will supply & install a 32mm PE yellow below ground gas main as shown on the drawing. A steel external riser pipe shall then be provided for entry into the building which shall be provided with a mains gas isolation valve, suitable labelled.

Internally, pipework shall be painted / identified to suit gas regulations requirements. Final connections to equipment shall be made by the mechanical contractor and shall include a lever handled gas isolation ball valve.

2.7 THERMAL INSULATION.

The mechanical contractor shall include for the insulation of all heating pipework in voids, service ducts, within cupboards, purpose made boxings and in the plantroom throughout. All valves, flanged connections and the like shall be provided with aluminium insulation boxes. Insulation shall comply with BS5422 and the British Standards publications referred to therein. Also comply with BS5970 and BS3533.

Materials must comply with BS476 part 4, non-combustibility test or obtain a Class 'O' fire rating. Insulation in voids and spaces shall be foil faced phenolic foam pipe insulation to.

Insulation shall be carried out by an agreed specialist insulation contractor. Do not apply insulation until the installation has been fully tested and all joints proved sound. Insulation shall be carried out by an agreed specialist insulation contractor. Do not apply insulation until the installation has been fully tested and all joints proved sound.

2.8 AUTO-CONTROLS SYSTEM.

Control of the heating installations shall be from a Heatmiser Neostat programmable room thermostat contained within a TG.510A clear plastic lockable / ventilated enclosure.

2.9 VENTILATION INSTALLATIONS.

The contractor shall include for the supply & installation of a Samsung heat recovery supply & extract ventilation unit to be located within the roof void space and to serve the Toilets Area as shown on the drawing.

Spiral wound supply and extract ductwork shall be installed as shown on the drawing and shall be complete with balancing dampers, fire dampers where indicated and supply & extract grilles as manufactured by Gilberts of Blackpool.

All ductwork within the roof void space shall be insulated with foil backed 'duct-wrap'.

2.10 HOT & COLD WATER SERVICES.

The hot water requirements to the new building shall be provided via the new Worcester 'combi' boiler located as shown on the drawing.

The existing below ground external incoming MCW supply into the Hall shall be connected into externally and shall be provided with a valved branch into the new building all as indicated on the drawing.

2.11 TESTING & COMMISSIONING.

Testing and commissioning of all systems must be undertaken in accordance with the standard specification with only suitably qualified personnel being utilised. Full and documented instructions must be given to the Consulting Engineer and Client's representatives and a call back allowance must be included for, to cover the end user's understanding and comfort with the systems.

2.12 WATER TREATMENT.

The LPHW system shall be chemical cleaned and a suitable corrosion inhibitor added on completion of all works and a certificate issued. The inhibitor shall comply and be in accordance with the boiler manufacturer's requirements/instructions. Appropriate treatment is available from either messrs Sentinel or Fernox . Sterilisation of domestic water supplies shall also be carried out in accordance with the Regulations and relevant BS.

2.13 AS-INSTALLED DOCUMENTATION.

Full compliance with the specification requirements for the provision of this documentation must be made.

2.14 SERVICE VISIT.

The Contractor is to allow within his tender for returning to site twice during the 12 months defects liability period to carry out service works.

The first visit shall take place after 6 months and the second after 12 months. Both visits are to be co-ordinated with the Client and their advisors.

SECTION 3.

**QUALIFICATION SHEETS FOR ENGINEERING INSTALLATIONS IN
ACCORDANCE WITH STANDARD SPECIFICATIONS M & E No. 3 & 100.**

Qualification Sheets,
for
Engineering Installations,
in accordance with
Standard Specification-M & E No.3

SECTION ONE-GENERAL REQUIREMENTS

1.1	Scope	applicable
1.2	Definitions	applicable
1.3	Related documents	applicable
1.4	Proven performance	applicable
1.5	Standards	applicable
1.6	Regulations	applicable
1.7	Drawings	applicable
1.8	As installed drawings	applicable
1.9	Maintenance and operating documents	applicable
1.10	Electricity supply	240v/1ph/50hz
1.11	Painting	applicable
1.12	Asbestos material	applicable
1.13	Schedules	applicable

SECTION TWO-CENTRAL PLANT

2.1	BOILERS	applicable
2.1.1	General	applicable
2.1.2	Steam boilers	n/a
2.1.3	Hot water boilers	applicable
2.1.4	Domestic hot water heaters	n/a
2.1.5	Boiler equipment	applicable
2.2	INSTALLATION	applicable
2.2.1	Solid fuel installations	n/a
2.2.2	Oil fired installations	n/a
2.2.3	Gas fired installations	applicable
2.2.4	Dual fired installations	n/a
2.3	COMBUSTION CONTROLS	n/a
2.3.1	General	applicable
2.3.2	Oil burners	n/a
2.3.3	Gas burners	applicable
2.3.4	Solid fuel installations	n/a
2.3.5	Dual and multi-boiler installations	n/a
2.3.6	Electric boilers	n/a
2.3.7	Multi-boiler installation	n/a
2.4	SAFETY CONTROL	applicable
2.4.1	Steam boiler systems	n/a
2.4.2	Hot water boiler systems	applicable
2.4.3	General requirements	applicable
2.5	PROTECTION CONTROL	applicable
2.5.1	General	applicable
2.5.2	Preheating	n/a
2.5.3	Overheating	n/a
2.6	INDICATOR LIGHTS AND ALARM	applicable
2.7	CHIMNEYS, FLUES & FLUE DUCTS	applicable
2.8	DAMPERS	n/a
2.9	HOT WATER SYSTEM PRESSURISATION	applicable

2.9.1	General	applicable
2.9.2	Gas pressurisation systems	applicable
2.9.3	Sealed diaphragm vessel systems	applicable
2.9.4	Constant or intermittent running pump	applicable
2.10	WATER TREATMENT	applicable
2.10.1	General	applicable
2.10.2	Water treatment	applicable
2.10.3	Steam boiler blow-down	n/a
2.10.4	Chemical conditioning equipment for steam systems	n/a
2.10.5	Filling hot water installations	applicable
2.11	INSTRUMENTATION	applicable

SECTION THREE-PUMPING EQUIPMENT

3.1	Circulating pumps	applicable
3.1.1	General	applicable
3.1.2	LTHW & MTHW heating & DHWS systems	applicable
3.1.3	HTHW heating systems	n/a
3.2	Boiler feed pumps	n/a
3.3	Condensate pumps and receiver sets	n/a
3.4	Semi-rotary hand pumps	n/a
3.5	Oil circulating & oil transfer pumps	n/a
3.6	Fire protection system pumps	n/a

SECTION FOUR-DISTRIBUTION INSTALLATION

4.1	Tubes and pipes	applicable
4.2	Pipework joints and fittings	applicable
4.2.1	LTHW & MTHW systems	applicable
4.2.2	HTHW systems	n/a
4.2.3	Steam systems	n/a
4.2.4	Condensate systems	n/a
4.2.5	DHWS systems	applicable
4.2.6	Cold water services	applicable
4.2.7	Natural gas services	applicable
4.2.8	LPG vapour distribution systems	n/a
4.2.9	Oil fuel systems	n/a
4.2.10	Fire protection systems	n/a
4.3	Welding	n/a
4.4	Brazing	n/a
4.5	Ancillary equipment	applicable
4.5.1	Pipework	applicable
4.5.2	Anchors	n/a
4.5.3	Expansion devices	n/a
4.5.4	Air venting	applicable
4.5.5	Emptying down, draining & flushing	applicable
4.6	General	applicable

SECTION FIVE-CALORIFIERS, CYLINDERS, CISTERNS AND WATER TANKS

5.1	Calorifiers	n/a
5.2	Cylinders	n/a
5.3	Electrically heated hot water storage vessels	n/a
5.4	Cisterns & cold water tanks	n/a
5.5	Feed/expansion and spill vessels for boilers	n/a

5.6	Hotwells for steam boiler	n/a
5.7	Blowdown tanks for steam boilers	n/a

SECTION SIX-SPACE HEATING EQUIPMENT

6.1	Radiators	applicable
6.2	Convectors	n/a
6.3	Continuous perimeter heating	n/a
6.4	Radiant panels, strips, ceilings & floors	applicable
6.5	Unit heaters	n/a
6.6	Equipment for steam and HTHW heating appliances	n/a
6.7	Surface temperatures	n/a

SECTION SEVEN-VALVES, TAPS AND COCKS

7.1	General	applicable
7.2	Safety and relief valves	applicable
7.3	Pressure reducing valves	n/a
7.4	Thermostatic control valves	applicable
7.5	LTHW radiator valves	applicable
7.6	Regulating valves	n/a
7.7	System commissioning valves sets	n/a
7.8	LTHW & MTHW heating systems	applicable
7.9	HTHW heating systems	n/a
7.10	Steam systems	n/a
7.11	Condensate systems	n/a
7.12	DHWS & cold water supply systems	applicable
7.13	Natural gas services	applicable
7.14	LPG vapour distribution systems	n/a
7.15	Oil fuel services	n/a
7.16	Fire protection systems	n/a
7.17	Valve labelling	applicable

SECTION EIGHT-AUTOMATIC CONTROLS, CONTROLLERS, CUBICLES & PANELS

8.1	GENERAL	applicable
8.2	SPACE HEATING & DOMESTIC HOT WATER CONTROL	applicable
8.2.1	Primary temperature control	applicable
8.2.2	Time programme control	applicable
8.2.3	Space temperature control	applicable
8.2.4	Thermostats & temperature detectors	n/a
8.2.5	Heating calorifiers	n/a
8.2.6	Combined heating & DHWS systems	n/a
8.2.7	DHWS systems	n/a
8.3	CONTROLLERS	n/a
8.3.1	Types and construction	n/a
8.3.2	On/off controllers	n/a
8.3.3	Integral controllers	n/a
8.3.4	Proportional plus integral controllers	n/a
8.4	CONTROL CUBICLES & PANELS	n/a
8.4.1	Construction	n/a
8.4.2	Indicator lamps	n/a
8.4.3	Wiring	n/a

SECTION NINE-MISCELLANEOUS EQUIPMENT

9.1	THERMOMETERS	applicable
9.1.1	General	applicable
9.1.2	LTHW heating & DHWS systems	applicable
9.1.3	MTHW & HTHW heating systems	n/a
9.2	PRESSURE GAUGES	applicable
9.3	STEAM TRAPS	n/a
9.4	STRAINERS FOR HOT WATER HEATING SYSTEMS	applicable
9.5	HOT & COLD WATER MIXING VALVES AND FITTINGS	n/a
9.6	GAS METERS	applicable
9.7	PLATFORMS, GALLERIES, STAIRWAYS & LADDERS	n/a
9.7.1	General	n/a
9.7.2	Flooring, landings & stair treads	n/a
9.7.3	Handrail systems	n/a
9.7.4	Stairways	n/a

SECTION TEN-THERMAL INSULATION

10.1	GENERAL	applicable
10.2	TYPES OF INSULANT	applicable
10.2.1	Within buildings	applicable
10.2.2	External to buildings	n/a
10.3	METHODS OF APPLICATION	applicable
10.4	FINISHES	applicable
10.4.1	General	applicable
10.4.2	In boiler houses and plant rooms	applicable
10.4.3	In buildings other than boiler houses and plant	n/a
10.4.4	External to buildings in open air or in ducts	n/a
10.4.5	Painting	n/a
10.4.6	Colour code	n/a

SECTION ELEVEN-ELECTRICAL EQUIPMENT & WIRING

11.1	General	applicable
11.2	Electric motors	applicable
11.3	Control Gear	applicable
11.4	Enclosures	n/a
11.5	Immersion heaters for hot water	n/a
11.6	fan convectors	n/a
11.7	Bonding	applicable
11.8	Testing	applicable

SECTION TWELVE-INSPECTION, TESTS & COMMISSIONING

12.1	Inspections by Competent person	applicable
12.2	Responsibility for reporting infringement of regulations	applicable
12.3	Cleanliness	applicable
12.4	Inspection & tests on completion	applicable
12.5	Tests generally	applicable
12.6	Commissioning	applicable
12.7	Boiler performance test	applicable

SCHEDULES

No.1	M&E3: Particular application to this contract	applicable
No.2	Information to be supplied by the tender	applicable

APPENDIX: COMMISSIONING & TEST CERTIFICATES

Form W2200: Commissioning certificate for heating, hot & cold water, steam & gas installation	applicable
Form W1930: Detail sheet & initial test certificate for steam & hot water	applicable
Form W1910: Detail sheet & initial test certificate for Electrical installations	applicable
Form 1910A: Continuation sheet	applicable
Form W1538: Certificate of pressure test of part of a system	applicable

Qualification sheets,
for
ENGINEERING INSTALLATIONS
in accordance with
STANDARD SPECIFICATION-M&E No.100

SECTION ONE-GENERAL REQUIREMENTS

1.1	Scope	applicable
1.2	Definitions	applicable
1.3	Related Documents	applicable
1.4	Proven performance	applicable
1.5	Standards	applicable
1.6	Acts & Regulations	applicable
1.7	Electricity supply	240v.1 phase
1.8	Electrical equipment & wiring	applicable
1.9	Drawings	applicable
1.10	Calculations	n/a
1.11	Maintenance & operation documents	applicable
1.12	Corrosion prevention & painting	applicable
1.13	Chlorofluorocarbons	applicable
1.14	Identification of services	applicable
1.15	Storage and protection	applicable
1.16	Rationalisation of supplies	n/a
1.17	Samples	applicable
1.18	Schedules	applicable

SECTION TWO-REFRIGERATION PLANT

2.1	General	n/a
2.2	Reciprocating compressors	n/a
2.3	Centrifugal compressors	n/a
2.4	Screw compressors	n/a
2.5	Water chilling evaporators (shell & tube type)	n/a
2.6	Air cooling evaporators (DX coolers)	n/a
2.7	Air cooled condensers	n/a
2.8	Evaporative condensers	n/a
2.9	Condensers (shell & tube type)	n/a
2.10	Pressure testing	n/a
2.11	Refrigeration plant accessories and controls	n/a
2.12	Refrigerant piping	n/a
2.13	Thermal insulation	n/a
2.14	Cooling towers	n/a

SECTION THREE-FANS

3.1	General	applicable
3.2	Centrifugal fans	applicable
3.3	Axial flow fans	applicable
3.4	In-line centrifugal & mixed flow	applicable
3.5	Propeller fans	n/a
3.6	Mechanical roof extract units	n/a
3.7	Packed duplicate-fan extract unit	n/a

3.8	Protectively coated fans and fans for corrosive hazardous applications	n/a
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SECTION FOUR-AIR FILTERS

4.1	General	applicable
4.2	Filter cell holding frames, seals & gaskets	applicable
4.3	Fire properties	applicable
4.4	Performance certification	applicable
4.5	Filtered grades	applicable
4.6	Bag or extended surface type filters	applicable
4.7	Panel filters	applicable
4.8	High efficiency particulate air (HEPA) filters	n/a
4.9	Activated carbon & adsorption filters	n/a
4.10	Grease eliminators	n/a

SECTION FIVE-AIR HEATER AND COOLER BATTERIES

5.1	General	n/a
5.2	Tests	n/a
5.3	Hot water heater batteries	n/a
5.4	Steam heater batteries	n/a
5.5	Electrical heater batteries	n/a
5.6	Chilled water cooler batteries	n/a
5.7	Direct-expansion refrigerant cooler batteries	n/a

SECTION SIX-AIR WASHING AND HUMIDIFYING PLANT

6.1	General	n/a
6.2	Steam humidifiers	n/a
6.3	Spray type air washers	n/a
6.4	Capillary type air washers	n/a
6.5	Spinning disc humidifiers	n/a
6.6	Sprayed coil units	n/a
6.7	Ultra-sonic type humidifiers	n/a
6.8	Drainage	n/a

SECTION SEVEN-AIR HANDLING UNITS

7.1	General	applicable
7.2	Construction	applicable
7.3	Thermal and acoustic insulation	applicable
7.4	Dampers	applicable
7.5	Fans	applicable
7.6	Provisions for automatic controls	applicable
7.7	Outdoor units	n/a

SECTION EIGHT-DUCTWORK, DAMPERS & TERMINAL DAMPERS

8.1	Fabrication drawings	applicable
8.2	Sheet metal ductwork	applicable
8.3	Installation	applicable
8.4	Inspection & tests	applicable
8.5	Plastic ductwork	n/a

8.6	Aluminium ductwork	n/a
8.7	PVC coated sheet steel ductwork	n/a
8.8	Steel ductwork, Galvanised after manufacture	n/a
8.9	Stainless steel ductwork	n/a
8.10	Bendable ducts & flexible ducts	applicable
8.11	Dampers	applicable
8.12	Access opening & inspection covers	applicable
8.13	Hoods	n/a
8.14	Test holes	applicable
8.15	Identification	applicable
8.16	Air terminal devices	applicable

SECTION NINE-AIR CONTROL DEVICES, INCLUDING INDUCTION, TERMINAL REHEAT & VAV UNITS

9.1	General	n/a
9.2	Induction units	n/a
9.3	Single & dual duct terminal units	n/a
9.4	Variable air volume (VAV) units	n/a
9.5	Underfloor fan-assisted air units	n/a
9.6	Constant volume flow regulators	n/a

SECTION TEN-FAN COIL UNITS

10.1	General	applicable
10.2	Casings	applicable
10.3	Components	applicable
10.4	Arrangement of unit	applicable
10.5	Controls, dampers & grills	applicable

SECTION ELEVEN-VENTILATING CEILINGS & PLATFORM FLOORS

11.1	General	n/a
11.2	Ventilating ceilings	n/a
11.3	Ventilating platform floors	n/a

SECTION TWELVE-IN-ROOM AIR CONDITIONING UNITS

12.1	General	n/a
12.2	Construction	n/a
12.3	Insulation	n/a
12.4	Grilles	n/a
12.5	Air filters	n/a
12.6	Fans	n/a
12.7	Refrigeration equipment	n/a
12.8	Humidifiers	n/a
12.9	Heaters	n/a
12.10	Coolers	n/a
12.11	Controls	n/a
12.12	Electrical requirements	n/a

SECTION THIRTEEN-WATER PUMPS

13.1	General	applicable
13.2	Centrifugal pumps	applicable
13.3	Twin pump sets	applicable

13.4	Canned roof pumps	n/a
13.5	Stand-by pumps	n/a
13.6	Gauges	applicable
13.7	Drives	applicable
13.8	Sump pumps	n/a

SECTION FOURTEEN-PIPEWORK

14.1	General	applicable
14.2	Materials	applicable
14.3	Joints	applicable
14.4	Flexible piping connections	applicable
14.5	Flexible connectors	applicable
14.6	Welding	applicable
14.7	Brazing applicable	applicable
14.8	Ancillary equipment	applicable
14.9	Draining & flushing provisions	applicable
14.10	Installation	applicable
14.11	Provisions for test	applicable
14.12	Provisions for chemical cleaning & water treatment	applicable

SECTION FIFTEEN-VALVES, COCKS & STRAINERS

15.1	General	applicable
15.2	Material & construction	applicable
15.3	Isolating valves	applicable
15.4	Check valves	applicable
15.5	Regulating & double regulating valves	applicable
15.6	System commissioning valve sets	applicable
15.7	Drain valves	applicable
15.8	Air cocks	applicable
15.9	Valve operation	applicable
15.10	Strainers	applicable
15.11	Valve labelling	applicable
15.12	Valve schedules	applicable

SECTION SIXTEEN-WATER STORAGE VESSELS

16.1	Cisterns & cold water tanks	n/a
16.2	Chilled & condenser water buffer	Included within the unit

SECTION SEVENTEEN-THERMAL INSULATION

17.1	General	applicable
17.2	Ductwork & air handling plant- Insulation materials & finishes	applicable
17.3	Ductwork & air handling plant- methods of application	applicable
17.4	Chilled water pipework & equipment- Insulation materials & finishes	n/a
17.5	Chilled water pipework & equipment- method of application	n/a
17.6	Vapour barriers	applicable
17.7	Painting & identification	applicable

SECTION EIGHTEEN-WATER TREATMENT

18.1	General	applicable
18.2	Pre-treatment plant	n/a
18.3	Water sampling & test equipment	applicable
18.4	Chemical dosing & bleed-off	applicable
18.5	Corrosion monitoring equipment	n/a
18.6	Storage	applicable

SECTION NINETEEN-HEAT WHEELS, HEAT PIPES, AIR & WATER PLATE HEAT EXCHANGERS & RUN-AROUND COIL

19.1	General	applicable
19.2	Heat wheels	n/a
19.3	Heat pipe units	n/a
19.4	Plate heat exchangers (air)	applicable
19.5	Plate heat exchangers (water)	n/a
19.6	Run-around coils	n/a

SECTION TWENTY-BELT DRIVES, VARIABLE SPEED DRIVES & GUARDS

20.1	Belt drives	applicable
20.2	Variable speed drives	n/a
20.3	Belt drive pulleys	applicable
20.4	Guards	applicable
20.5	Electric motors	applicable

SECTION TWENTY-ONE-VIBRATION, ISOLATION & NOISE INSULATION

21.1	Anti-vibration provisions	applicable
21.2	Noise	applicable
21.3	Noise insulation (airborne noise)	applicable
21.4	Circular & rectangular attenuators	applicable
21.5	Sound absorbent ductwork linings	n/a
21.6	Fixings of thermal & acoustic linings	n/a
21.7	Acoustic enclosures	applicable

SECTION TWENTY-TWO-INSTRUMENTS

22.1	General	applicable
22.2	Air system pressure gauges	applicable
22.3	Air system thermometers	applicable
22.4	Water system thermometers	applicable
22.5	Pressure gauges	applicable
22.6	Filtered differential pressure indicators	applicable
22.7	Remote reading thermometers	n/a

SECTION TWENTY-THREE-AUTOMATIC CONTROLS

23.1	General	applicable
23.2	Air compressor plant for pneumatic control systems	n/a
23.3	Control equipment features	applicable

23.4	Sensing elements	applicable
23.5	Motorised dampers	applicable
23.6	Air heater control	applicable
23.7	Air cooler control	n/a
23.8	Humidifier control	n/a
23.9	Controls for water cooling & chilling	applicable

SECTION TWENTY-FOUR-STARTER & CONTROL PANEL

24.1	General	applicable
24.2	Panel arrangement	applicable
24.3	Materials & construction	applicable
24.4	Panel wiring	applicable
24.5	Identification labels	applicable
24.6	Ventilation	applicable
24.7	Instruments & indication	applicable
24.8	Starters & control gear	applicable
24.9	Automatic control	applicable
24.10	Testing	applicable
24.11	Screening & interference	applicable

SECTION TWENTY-FIVE-ELECTRICAL EQUIPMENT & WIRING

25.1	Scope	applicable
25.2	General	applicable
25.3	Electrical motors	applicable
25.4	Electrical wiring	applicable
25.5	Screening & interference	applicable

SECTION TWENTY-SIX-INSPECTION, TESTING & COMMISSIONING

26.1	Definitions	applicable
26.2	General	applicable
26.3	Cleaning	applicable
26.4	Testing	applicable
26.5	Commissioning of water & air distribution systems	applicable
26.6	Commissioning of specialist equipment	applicable
26.7	Commissioning results	applicable
26.8	Performance testing	applicable
26.9	Sound level measurements	applicable

SECTION TWENTY-SEVEN-MAINTENANCE & OPERATION PROCEDURES & DOCUMENTS

27.1	Installer maintenance procedures	applicable
27.2	Instruction procedures	applicable
27.3	Maintenance and operation documents	applicable

SCHEDULE NO.1-INFORMATION FOR THE TENDERER SUPPLIED BY THE DESIGN OFFICE	applicable
SCHEDULE NO.2-INFORMATION TO BE SUPPLIED BY THE TENDERER	applicable









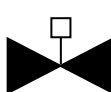


SECTION 4.

MECHANICAL SERVICES DRAWING LEGEND

and

TESTING / COMMISSIONING SHEETS.

MECHANICAL SERVICES DRAWING LEGEND

	Pipework in Floor Duct / Trench
	Pipework At Low Level
	Pipework At High Level
	Pipework In Roof / Ceiling Void
	Change In Pipework Level
	Radiator
	Wheel Valve Or Stopcock (SC)
	Lockshield Valve (LSV)
	Motorised Valve
	Air Vent (AAV)
	Draw Off Cock (DOC)

Abbreviations

RTA	-	Rise to above
DFA	-	Drop from above
DTB	-	Drop to below
RFB	-	Rise from below
DTLL	-	Drop to low level
RTHL	-	Rise to high level

Mechanical and Electrical Services

COMMISSIONING CERTIFICATE

for

HEATING, HOT AND COLD WATER, STEAM AND GAS INSTALLATIONS.

1. Establishment (Full Address)

2. Drawings

3. Specification

4. External Conditions At Times of Thermal Tests

Date

Air temperature (average) during test

°C

“ “ (mean) day before

°C

“ “ (mean) two days before

°C

General synopsis f Wet f Dry f Sunny f Overcast

Wind force Wind direction

Any unusual conditions

Note: Temperature and other data relevant to the thermal performance of Central and Sub-Plants shall be recorded subsequent to any boiler combustion efficiency trials.

5. Deficiencies

List any significant aspect, either physical or operational, in which the installation fails to comply with the specification or the safety requirements.

6. Remarks

List any points likely to be helpful to the user in operating or maintaining the plant.

7. Marked Drawings

* This certificate is to be read in conjunction with marked drawing(s) Nos.(a)

* Delete if not applicable

8. General Notes

(1) The evidence of satisfactory test results shall not supplant the requirements of any relevant specification.

(2) Acceptance of this Certificate by the Consulting Engineer shall not imply acceptance of the installation.

(3) All sections of this Certificate must be completed, where appropriate, write NT (not tested), or NA (not applicable) or none.

(4) On completion, this Certificate shall be signed by the authorised representative of the Contractor or his appointed Specialist and countersigned and retained by the Consulting Engineer.

9. Declaration

I am satisfied that the information given in this certificate is an accurate record of the results obtained and a true statement of plant settings etc., during commissioning on.....(dates)

The installation was complete/incomplete when commissioned.

Signed.....

for and on behalf of.....

Date.....

Witnessed by.....

for and on behalf of the Consulting Engineer

Date.....

CERTIFICATE OF PRESSURE TEST OF PART OF A SYSTEM

Contract No..... Main Contractor.....
Sub Contractor.....

Project Title.....

Location.....

Service Under Test.....

Relevant Contract Drawing.....

Relevant Clause(s) in Standard and Supplementary Specification.....
.....

Specification Working Pressure.....(state units)

Test Pressure.....(state units)

Nature of Test.....(state air, hydraulic, etc)

Duration of Test.....hours/minutes

Remarks

Identification Sketch

.....
Witnessed by

.....
Foreman for Contractor

SECTION 5.

SUMMARY OF TENDER.

SECTION 5.

SUMMARY OF TENDER.

MECHANICAL SERVICES – NETHER ALDERLEY PARISH HALL

1. PRELIMINARIES	£
2. INCOMING MCW SUPPLY	£
3. INCOMING GAS SUPPLY	£
4. BOILER PLANT INSTALLATION	£
5. UNDERFLOOR HEATING INSTALLATION	£
6. RADIATORS INSTALLATION	£
7. HEATING PIPEWORK INSTALLATION	£
8. HOT & COLD WATER INSTALLATION	£
9. GAS PIPEWORK INSTALLATION	£
10. PIPEWORK INSULATION	£
11. VENTILATION SYSTEMS	£
12. TEST & COMMISSION SYSTEMS	£
13. WATER TREATMENT & DOSING	£
14. AS-FITTED DRAWINGS & MANUALS	£
15. SERVICE VISITS	£
16. Any other items not included above;	
(i)	£
(ii)	£
17. Sub-Total	<hr/> £
18. Provisional Sums and Contingency Sums	
a) Contingency Sum	£ 1,000.00
b) Provision of gas meter installation	£ 2,500.00
c) Possible additional works to external MCW pipework	£ 500.00
	<hr/>
18. TOTAL TENDER VALUE	<hr/> £ <hr/>