RIDGE

TROWBRIDGE TOWN COUNCIL CIVIC CENTRE ASHP REPLACEMENT AND VENTILATION ADJUSTMENTS MEP PARTICULAR SPECIFICATION

21/07/2021

TROWBRIDGE TOWN COUNCIL CIVIC CENTRE, WILTSHIRE AIR SOURCE HEAT PUMP REPLACEMENT AND VENTILATION ADJUSTMENTS

21/07/2021

Prepared for

Trowbridge Town Council

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VERSION CONTROL

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3.0	05/11/2021	ASHP added back in	SM	SM

1. INTRODUCTION

This Specification details the mechanical and electrical building services requirements for the heat pump replacement and ventilation installation modification works at the Trowbridge Town Council Civic Centre, Wiltshire.

The specification is to be read in conjunction with the mechanical and electrical workmanship specification issued with this specification.

It should be noted that the M&E Contractor shall be the Principal Contractor for these works and shall be responsible for all health and safety, provision of lifting equipment etc.

Additionally, refer to the tender invitation as issued by Trowbridge Town Council for Conditions of Contract and Preliminaries.

1.1. Building Constraints

Before tendering the M&E Contractor shall visit site to ascertain the nature of the site, access arrangements and all local condition and restrictions likely to affect the execution of the works.

1.2. Programme

The Contractor shall provide within their Tender Return a detailed programme of works detailing proposed start & completion dates. The Contractor shall ensure the programme takes account of any other works associated with the chiller replacement/ refurbishment.

The Contractor shall base their programme on completing the heat pump replacement by the close of Jan 2022.

1.3. Defects Liability

The defects liability period for the M&E installations is for 12 months from the granting of practical completion.

1.4. Project Description and Summary

The project is to provide the complete replacement of 1No. Air Source Heat Pump serving the LPHW installation and in summer mode the CHW circuit serving the Lansdown Hall. Redistribution of ventilation terminals serving the Lansdown Hall and refining the air distribution to reduce pooling of cool air in occupant zones and avoid false readings on room thermostats.

The existing system shall go through an extensive flushing and cleaning process to ensure that all fouling, debris, and material is removed from the AHU and associated heating and cooling systems before the revised air delivery is brought online.

Ventilation system modification requires conducting the validation of the existing system. This includes a thorough examination of Air Handling Unit, ductwork and the BMS system to fully understand the existing user panel.

The Contractor shall include everything necessary for the proper and satisfactory execution of the work to the approval of the CA and true intent of the specification.

1.5. Standards

The design elements referred to later herein shall be in accordance with the following: -

- British Standards & Codes of Practice
- Building Regulations
- IEE Wiring Regulations for Electrical Installations BS 7671 (referred to as BS 7671 hereafter).
- CIBSE Commissioning Guides
- The Electricity Safety, Quality and Continuity Regulations
- Health and Safety at Work Act
- The Electricity at Work Regulations
- HSE Engineering Information Sheet No. 36 – Safety in Electrical Testing
- HSE INDG354 - Safety in Electrical Testing at Work (General Guidance)
- The Statutory Fire Officers and Building Control Requirements
- Code of practice for distribution of electricity on construction and building sites (BS 7375)
- Electricity at Work Regulations
- Control of Substances Hazardous to Health (COSHH) Regulations
- Construction (Design & Management) Regulations.
- Recommendations advised by all relevant local authorities.
- Manufacturers' recommendations
- Good working practice for standards of workmanship & quality of materials.

2. MECHANICAL & ELECTRICAL SCOPE OF WORKS

2.1. Validation Survey

A validation survey shall be undertaken prior to submitting the tender return, to verify matters that could affect post-tender costs or works. No additional costs will be approved post-tender for any additional works whose necessity was evident from information available at the time of tender. The contractor shall plan to visit site through the Contract Administrator.

Where quantities are stated in the tender documents, take these as indicative only. The contractor shall ascertain final quantities prior to the commencement of any works.

The contractor shall undertake detailed surveys of each plant or associated system item to be stripped out, to enhance the information provided within the tender documentation, and become fully acquainted with system arrangements, including circuit configurations and switching arrangements.

The Contractor shall undertake water sampling and provide a report detailing the water quality in the current system LTHW and CHW systems. Any abnormal results shall be flagged and reported.

2.2. Strip Out Works

The strip-out works described within this section are provided for guidance only. The contractor shall determine the actual level of removals required based on a detailed validation survey carried out during the tender period.

Prior to the commencement of any strip-out or alteration works the contractor shall ensure the system is made safe by electrically isolating and decommissioning the components being removed. This shall include any back-up and/ or temporary back-up power supplies.

Component strip-out and alteration works shall comprise, but not be restricted to, the following:

- Isolation, decommissioning and removal of Air Source Heat Pump (Aqua Ciat 2).
- Strip out of any redundant pipework, valves etc if identified as beyond maintainable use or if not required for reuse and make ready for system modifications.
- Power and control wiring to be retained for re-use where possible.
- Strip-out of existing grilles and redundant ductwork and make ready for system modification.

The Contractor shall make good any damage to equipment, fixtures, fittings, building fabric and decorative finishes caused by the removal of any of the existing system components.

The contractor shall undertake disposal of waste materials in accordance with an authorised and environmentally sensitive procedure; and provide waste disposal certification where appropriate.

A copy of the documentation must be issued to the CA prior to commencement of the works and copied into the Handover Documentation.

2.3. ASHP Replacement

The contractor shall make allowance for a full like for like replacement of the 1No. Air Source Heat Pump.

The existing unit has the following specification:

Type – Reverse Cycle Air – Water Heat Pump
Model – Aqua Ciat 2 900V ILDH
Heating Capacity - 225.7
Heating Water Flow Rate – 3.86 kg/s
Heating F/R – 50/30 °C
Condenser Type – Air cooled

The contractor shall include delivery, cranage, removal and handling of all equipment necessary to hand over fully functioning system to the Client Specification.

The new ASHP shall utilise the existing concrete plinth, however if the ASHP is dimensional different the existing plinth shall either be modified/ extended to suit. The contractor shall ensure that the builders work element required for any upgrade to the plinth shall be included within the cost.

The contractor shall allow for modifications to existing pipework where required. The contractor shall make arrangements to visit site during the tender period establishing any unknowns which will require addressing as part of the works. This shall include the extent of the pipework modifications required.

Following the completion of ASHP replacement works the primary and secondary pumps shall be commissioned with both primary and secondary sides balanced in flow/ duty.

The Contractor is strongly advised to visit site in order to assess required works to the control panel and BMS system, and to fully understand the existing user panel.

The contractor shall ensure that the existing site wide BMS system is fully integrated with the ASHP system controls. Any existing controls logic, sensors, etc are to be re-used within the scheme where economical to minimise costs.

The existing graphics within the Estates dept shall be modified to reflect the additional controls and alarms added to the ASHP system.

Allow for removal of all redundant pipework, fittings, insulation from site.

The contractor shall Commission the system to provide fully functioning and working system. An extended commissioning period shall be required to monitor system performance ensuring the operation is within design parameters.

The Contractor shall allow 1 day for training and demonstration to the client. This shall include the BMS presentation, operation strategy and introduction to all newly installed plant and equipment.

The contractor shall provide Operation and Manuals for newly installed plant and equipment. This shall include but not be limited to As Built drawings, system description, control strategy, schedule of plan and equipment, operating conditions (flow rates, temperatures, times etc.) manufacturer's data – project specific.

Any recommendation by Contractor in regards to installation method, manufacturers and material used shall be via Client and Supervising Officer.

2.4. Ventilation System Modification in Lansdown Hall

The Work requires the replacement of the existing supply grilles currently located at a low level within Lansdown Hall.

The existing grilles cause discomfort to occupiers, by supplying either too hot or too cold air with a high velocity causing local pooling of conditioned air and not providing an even temperature across the space.

The Contractor shall replace the existing diffusers with the new ones installed at a high level underneath the existing acoustic panels

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The Contractor shall allow for modification of ductwork and controls where required.

The Contractor is advised to validate the existing AHU, velocity, and airflow rates, whether they are in line with the original design criteria. Original commissioning data is available on 'as fitted' layouts.

Prior to any builders work associated with the ventilation system modification, the Contractor shall assess the control panel and BMS system to validate the commissioning figures.

2.5. Existing pipework and system components

The contractor shall allow for flushing, chemical cleaning and water treatment for the existing system which shall be carried out to the recommendations of a Water Treatment Specialist employed by the Contractor and in accordance with the BSRIA Application Guide AG 1/2001. The proposed Water Treatment Specialist shall be stated by the Contractor at the time of Tender. Any deviation to the proposal shall be approved by the Employer's Representative.

A Method Statement shall be produced by the Contractor and the Water Treatment Specialist detailing the proposed method of carrying out the works and the chemicals proposed to be used.

The contractor shall allow for the cleaning of existing strainers. The contractor shall assess the condition of existing system strainers and make allowance for replacement should they be deemed beyond their maintainable lifetime.

2.6. Controls & BMS

The Contractor shall employ a controls specialist to modify the existing control panel to incorporate the revised controls requirements.

The specialist shall carry out a health check of the existing controls and BMS, if any issues are found then the CA shall be notified so that they can issue an instruction to fix if appropriate.

New controls point to be installed within the event managers office to allow for adjustment of temperature only and initiation of ventilation system.

2.7. Power Supplies to Mechanical Services

The Contractor shall test the existing power cables serving the existing ASHP and which are planned to be reused for the unit to verify their condition and that they are capable of carrying the correct load. They shall also verify the current fuse size within the electrical switch board.

The results shall be reported back to the CA as early within the works as possible.

The Contractor shall supply, install, test and commission the complete electrical services installation associated with power supplies to mechanical equipment.

Ensure all items of equipment have two points of isolation, one adjacent the item of plant/equipment and the other at low level, e.g. at the distribution board.

Control and isolation equipment for all mechanical plant shall be clearly labelled as to its function.

2.8. Training

The Contractor shall allow for providing suitable training for the Clients staff in the use of the revised arrangement. This shall take place prior to the handover meeting.

2.9. Handover Documentation

The Contractor shall allow to supply handover documentation for the works in accordance with Trowbridge Town Council project handover guidelines for completion. For this project the short form version shall be acceptable.

1No hard copy and 2No electronic copies are required ready for the handover meeting. Prior to this they shall be issued to the CA for review and approval allowing 10 working days for this to take place.

3. PRICING SCHEDULE

Ref	Item	Cost
1	Validation Survey	£
2	Strip out Works	£
3	Existing pipework and components	£
4	Replacement ASHP	£
5	Controls & BMS	£
6	Power to mechanical services	£
7	Training	£
8	Handover documentation	£
9	Provisional sum	£
10	Other (please specify)	£
	Total	£

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