PB Design and Consultancy Ltd

☎ 07772261184
✉ peter@pbdesignltd.co.uk

MECHANICAL ENGINEERING

SPECIFICATION REVISION A

Ware Priory Lido
Priory Street, Ware
Hertfordshire.
SG12 0DE

Proposed Extension and Refurbishment
On Behalf Of

Ware Town Council

October 2024 **240502**

Revision A 16/10/24

Contents

1 Particulars of Contract

1.1 Program

Refer to main contract prelims

1.2 Site Visits

Tenderers are advised to visit the site before submitting their Fixed Price Tender to satisfy themselves of the local conditions, accessibility of the areas of work, the full extent and nature of the works and general conditions affecting the execution of the works.

Submitted tenders will be deemed to be fully inclusive offers in accordance with the Tender Documents unless precisely qualified otherwise.

No claim for additional payments in respect of lack of knowledge will be considered by the Employer

Site Visits to be arranged with the contract administrator:

Stuart Roberts
iCON Building Consultancy Limited
Chartered Building Surveyors & Project Managers
T: 01279 653 386
M: 07788 190 625
E: stuart.roberts@iconbc.co.uk

1.3 Method Statements and Risk Assessments

The successful contractor shall allow to provide the client with risk assessments and method statements for all works prior to starting on site.

2 Materials and Workmanship Clauses

Materials and workmanship are to be of the best quality and standards.

All materials and workmanship are to be to the latest British Standards where applicable, including BS 8000.

Test all materials in accordance with the relevant British Standard when requested to do so by the Contract Administrator.

All proprietary items are to be fixed completely in accordance with the manufacturers or supplier's instructions and/or recommendations.

Contractors are to ensure that all materials specified are available within the contract period. Any deviations due to anticipated problems must be stated on submission of tender.

3 General Description of Works and Intent

The works described herein and on the associated drawing comprise the mechanical engineering services in relation to the extension and refurbishment of the main building at Ware Lido, as shown on the tender drawings and described in this specification.

The whole of the installation carried out under this contract must comply with the following regulations and requirements, together with the latest revisions and amendments, which apply at the time of installation.

Building Regulations.
Local Authority Bye-Laws, Regulations and Notices.
British Standards and European whether applicable in part or whole.
Relevant British Standard Codes of Practice.
BS 7671: 2008, Requirements for Electrical Installations Wiring Regulations Seventeenth Edition.
Management of Health and Safety at Work Regulations 1999
Electrical Equipment (Safety) Regulations 1994 (3260).
The local Fire Authorities requirements.
The Construction (Design and Management) Regulations 2007
Work Equipment Regulations 1998
Manual Handling Operations Regulations 1992
Workplace (Health Safety and Welfare) Regulations 1992
Personal Protective Equipment at Work Regulations 1992
Display Screen Equipment Regulations 1992
Asbestos Licensing Regulations 1998
The Control of Asbestos Regulations 2006
Construction (Head protection) Regulations 1989
Construction (Health, Safety and Welfare) Regulations 1996
Control of Lead at Work Regulations 2002
Control of Substances Hazardous to Health Regulations 2002
Pollution Prevention and Control Act 1999
Waste Management Licensing Regulations 1994
Reporting of Injuries, Disease and Dangerous Occurrences Regulations 1995

The works covered by this contract will comprise of the following:

3.1 Heating and Cooling

A new air to water heat pump will supply primary heating to the changing village via underfloor heating as well as providing primary supply to a hot water calorifier

A new heat pump system will provide heating and cooling to the community studio and therapy rooms.

In the remaining areas heating will be provided by electric ceiling mounted radiant panels,

3.2 Domestic Hot and Cold Water

A new ASHP will serve primary supplies to an indirect calorifier which in turn will provide all hot water to the changing village.

In all other parts of the building local electric point of use water heaters will be installed.

The existing cold water main is to be retained and used to serve a new cold water storage tank and mains water outlets.

A boosted cold water system will be installed to serve the changing village.

3.3 Mechanical Ventilation

In both the changing village and community studio, mechanical heat recovery ventilation systems are to be installed with associated ductwork, grilles etc.

Local extract ventilation will be provided to sanitary accommodation, kitchen areas and the staff office.

3.4 Above Ground Drainage

New above ground drainage is to be installed connected to both existing and new below ground drainage pop ups (by others).

4 Pricing

This contractor shall complete the summary of tender breakdown at the rear of this specification to enable a full tender evaluation to be completed by the contract administrator.

5 Drawings

5.1 Tender Drawings

The following form the tender drawings for this contract:

240502-M01 Proposed Heating and Cooling Services Plan 1 of 2
240502-M02 Proposed Heating Services Plan 2 of 2
240502-M03 Proposed Hot and Cold Water Services Plan 1 of 2
240502-M04 Proposed Hot and Cold Water Services Plan 2 of 2
240502-M05 Proposed Hot and Cold Water Services Schematic
240502-M06 Proposed Mechanical Ventilation Services Plan 1 of 2
240502-M07 Proposed Mechanical Ventilation Services Plan 2 of 2
240502-M08 Proposed Mechanical Ventilation Services Roof Plan
240502-M09 Proposed Mechanical Ventilation Schematic
240502-M10 Proposed Above Ground Drainage Services
240502-M11 Proposed Plant Layout and Schematic

Tender drawings are generally diagrammatic and do not show all fittings, bends etc. necessary to carry out the works. It is therefore essential that, the contractor visits site to ascertain the full extent of the works, as no additional funding will be made available for a lack of knowledge

5.2 Installation Drawings

The Tender drawings issued are provided to show primary routes, , component order etc.
They shall not be used as working or fabrication drawings.

The Services Contractor shall develop the tender drawings in order to provide a complete set of working and fabrication drawings for the installation works

In particular detailed layout drawings for plant rooms and air source heat pump installations shall be provided showing all necessary manufacturers maintenance clearances.

The Contractor shall issue the working drawings to the Contract Administrator, however, comments received from the Contract Administrator shall not relieve the Contractor of his responsibility for overall co-ordination.

5.3 Record Drawings

The Services Contractor shall provide record drawings that are:

1) Based upon the installation drawings.
2) An accurate record of the actual installation including any deviations from the working drawings that have occurred on site.
3) Fully co-ordinated
4) Indicate the layout identity, size and position of all services installed.
5) Provided in electronic format and issued at Practical Completion.

6 O&M Manuals

The Services Contractor shall produce all information necessary for inclusion in the building Health and Safety file, referred to as Operating and Maintenance (O&M) manuals below.

Program for production of O&M manual.

1) Initial Draft Copy shall be provided prior to Commencement of Commissioning (minimum of 21 days before Client demonstrations and contract completion.)
2) Allow a minimum of seven days for the Engineer to comment.
3) Incorporate all comments, re issue for comment if substantial change required.
4) Prior to Practical Completion supply final copies.

The O&M manuals shall include:

1) Bound in covers capable of withstanding continual heavy use.
2) An Index.
3) Helpful telephone numbers.
4) Instructions for dealing with emergency conditions for each plant.
5) All information to enable operational staff to comprehend fully the extent, purpose and method of operation of the plant(s) including a full description of operation.
6) Detailed schedules of all plant and equipment installed, including model numbers, serial numbers and capacities and with reference numbers which agree with the detailed labelling strategy agreed with the engineer.
7) Schedule of manufacturers' names, addresses and telephone numbers.
8) Detailed instructions on the starting up, running and shut-down of all systems
9) Description of operational routines, together with diagrams showing the functions of all controls.
10) Clearly set out the extent and frequency for which maintenance is required, in detail, and how it should be carried out
11) Maintenance and lubrication schedules listed in order of frequency.
12) Information to facilitate the ordering of spares and replacements
13) Common fault finding measures and remedial actions.
14) Any precautionary measures necessary to prevent corrosion or freezing etc
15) Care required of plant which is or may be subject to seasonal or occasional use
16) A final copy of the report(s) prepared during testing and commissioning, including all test certificates.
17) Maintenance information may be supported in detail, but not replaced, by maintenance instructions provided by the suppliers of equipment and/or plant
18) The instructions shall provide a complete and co-ordinated package
19) A full set of Record or ‘As Fixed’ Drawings.
20) Valve charts referenced to coincide with the marking of valve labels etc..

The manual to contain a flash drive version to contain the following:

CAD drawings (Latest AutoCAD version) and PDF copies of all Record and ‘As Fitted’ drawings.
Microsoft Word (Latest version) and PDF of all of Services Contractors written instructions.
PDF copies of all manufacturers O&M manuals
PDF Copies of all certificates, commissioning results, test certificates etc.
Electronic copy of control strategies as final commissioned state.

Include for the provision of 1No valve chart in the plantroom

This shall contain a schematic drawing of the system which shall be fully noted with each valve referenced according to the labels/discs fitted. A full schedule shall be included to give details of the valve number, description, function, size and make.

7 Basis of Design

The following criteria have been used in the design of the mechanical services.

ASHP Primary Heating Flow Temp.	55°C
ASHP Primary Heating Return Temp.	50 °C
ASHP Primary HWS Flow Temp.	63 °C
ASHP Primary HWS Return Temp.	58 °C
Secondary Heating Flow Temp.	55 °C
Secondary Heating Return Temp	45 °C
HWS Flow Temp.	60 °C
HWS Return Temp.	55 °C
External Design Temperature	-4 °C
Changing Village Ventilation Rate	Normal 6 Ach/hr Boost 10 Ach/hr
Community Room Ventilation Rate	10 l/s per person

8 Contractors Design Portion (CDP)

The Services Contractor shall assume full design responsibility for the following items:

- All builderswork requirements associated with the services installation including provision of all necessary drawings.
- Design of all necessary services supports/fixings, including guides and anchors
- Design all necessary means for expansion and contraction for the Mechanical Services.
- Design of automatic controls via specialist sub-contractor
- Design of roof mounted support system for ductwork and plant
- The co-ordination of all services installations with all other trades on site and the building structure and fabric.

9 Removals and Strip Out

9.1 General

Allow to regularly collect, centrally store and subsequently remove from site all surplus materials before the completion of the works. Keep the site safe and tidy at all times.

Dispose of any old or scrap materials in such a way that results in the least damage to the environment. Any materials that can be recycled or sold as scrap (e.g. copper, steel etc.) should be. Allow for all such proper disposal costs within the tender offer.

Ensure that any construction waste is removed, recycling where possible to minimise the amount of waste taken to landfill.

If the building is to remain occupied for the duration of the contract, allow for the fitting and if necessary removal of temporary valves and bypasses to enable the services to be maintained to the occupied part of the building.

9.2 Existing Heating Services

All existing electric heating within the building is to be removed in its entirety.

9.3 Existing Hot and Cold Water Services

The existing incoming cold water main is to be retained where it enters the plant room and serves the pool plant and external bib taps.

The existing cold water main serving the building along with the associated remote hot water cylinders and all other pipework and fittings within the building are to be removed.

10 Connections to Existing Services

The Contractor shall be responsible for all new connections required to existing services.

The Contractor shall make due allowance in his tender for isolating where required, of all existing mains to which he makes new connections.

The Contractor shall not isolate any section of any existing service unless the CA or his representative has previously approved in writing the time and date of isolation.

The Contractor shall include in his tender for the provision of any temporary connections to existing services where these are necessary to prevent interference with the operation of existing services.

11 Builders Works

It is intended that all major builders work will be carried out by a Main Contractor, this includes construction of ASHP compounds and bases, construction of plinths for plant room equipment, holes through fabric for ductwork (larger than 50mm diameter) including making good painting of exposed pipework etc.

The mechanical contractor shall allow for drilling for fixings for all mechanical equipment, pipework, ductwork etc.

The mechanical contractor shall allow to provide a detailed builders work schedule and associated drawing to the main contractor.

12 Air Source Heat Pump

Provide and fit 1 No, Strebel S-ASX-NT - 70 Air to Water Heat Pump with rated output of 66.7KW at air 7°C and water 35°C.

All the above as manufactured by:

Strebel Ltd
Unit 10, Invincible Road
Farnborough
Hampshire
GU14 7QU
Tel: 01276 685 422
Email: info@strebel.co.uk
Website: https://strebel.co.uk

Strebel Quotation Reference 419104 dated 27/08/24

Include for commissioning by the manufacturer.

The air source heat pump shall be serviced by the manufacturer at the end of the defect period or one year after commissioning of the equipment (whichever is shortest).

13 Thermal Store

Provide and fit 1 No, Strebel TSE 800/3 Thermal Store, with a capacity of 800 litres and complete with 12KW back up immersion heater, thermometer kit and pressure gauge.

All the above as manufactured by:

Strebel Ltd
Unit 10, Invincible Road
Farnborough
Hampshire
GU14 7QU
Tel: 01276 685 422
Email: info@strebel.co.uk
Website: https://strebel.co.uk

Strebel Quotation Reference 419104 dated 27/08/24

Include for commissioning by the manufacturer.

14 Hot Water Cylinder

Provide and fit 1 No, Strebel S-LC-I 800 SS Calorifier, with a capacity of 800 litres and complete with 12KW three phase immersion heater, Unvented Pack 6e.80 - 1 1/4 Controls & 1 1/2" T&P valve

All the above as manufactured by:

Strebel Ltd
Unit 10, Invincible Road
Farnborough
Hampshire
GU14 7QU
Tel: 01276 685 422
Email: info@strebel.co.uk
Website: https://strebel.co.uk

Strebel Quotation Reference 419104 dated 27/08/24

Include for commissioning by the manufacturer.

15 Heating Pump

Provide and fit 1No Grundfos Magna 1 25-60 single head single phase variable speed pump, capable of 0.378 l/s @ 20Kpa as manufactured by:

Grundfos Pumps Ltd
Grovebury Road
Leighton Buzzard
Beds
LU7 4TL
Tel: 01525 85 00 00
Email: grundfos-uk@sales.grundfos.com

16 Secondary Hot Water Pump

Provide and fit 1No Grundfos Alpha 1 15-50 N 130 single head single phase variable speed pump capable of 0.05 l/s @ 25Kpa as manufactured by:

Grundfos Pumps Ltd
Grovebury Road
Leighton Buzzard
Beds
LU7 4TL
Tel: 01525 85 00 00
Email: grundfos-uk@sales.grundfos.com

17 Pressurisation Unit and Expansion Vessel

Provide and fit 1No EFD digital electronic pressurisation unit and 1No MikroPro 100 litre expansion vessel as manufactured by:

Mikrofill Systems Ltd
1 Merse Rd,
Moons Moat North Industrial Estate,
Redditch
B98 9HL
Tel: 03452 606020
Email: sales@mikrofill.com

18 Chemical Dosing Pot

Provide and fit 1No DP6 stainless steel chemical dosing pots as manufactured by:

Fabricated Products UK Ltd
Unit 1
Fullerton Road
Rotherham
South Yorkshire
S60 1DH
Tel: 01709 720 842
Email: sales@fabricatedproducts.co.uk

19 Gauges and Thermometers

Provide and fit as shown on the drawings, 100mm dial pressure gauges, 0 Bar to 6 Bar and 100mm dial thermometers, 0°C to 100°C complete with ½ inch BSP connections and ½ inch BSP pockets in accordance with BS EN13190

20 Underfloor Heating

Allow for the complete installation of all new underfloor heating to the changing area, including provision of manifolds, heat packs, thermostats, Wavin 5 layer PERT pipework, clip rails etc as shown on the tender drawing and supplied and installed by:

Floor Heat Systems Ltd
88a Lovell Road
Oakley
Bedford
England
MK43 7RX
Tel: 01234608722
Mob: 07846135531
Email: info@floorheatsystems.co.uk

21 Electric Radiant Panels

Provide and fit as shown on the drawings and schedule, 17No IP44 rated steel panel electric radiant panels as manufactured by

BN Thermic Ltd
34 Stephenson Way,
Three Bridges,
Crawley
RH10 1TN
Tel: 01293 547361
Email: sales@bnthermic.co.uk

22 Cold Water Storage Tank

Provide and fit 1No 3,000 litre GRP sectional cold water tank complete with 25mm drain assembly, 40mm equilibrium ball valve, 65mm overflow, 50mm outlet connection.

Tank external dimensions 3140mm x 1150mm x 1207 high and to be mounted on builderwork plinth to provide minimum of 1,000mm static pressure to booster set.

Tank model PW.3x1x1.IFB.AG as supplied by:

Tanks Direct,
Channel House,
Mart Road,
Minehead,
TA24 5BJ
Tel: 0333 272 3827
Email: sales@tanks-direct.co.uk

Or Equal and Approved

23 Cold Water Booster Set

Provide and fit 1No, 1 No Stuart Turner, Aquaboost SP2V-10HM04S-VARiFLO-24, single phase twin pump cold water booster set capable of 3.3 l/s @ 3.0Bar as manufactured by

Stuart Turner Ltd,
Unit 6 North Point Business Park
Eggborough
North Yorkshire
DN14 0JT
Tel: 01977 801911

Or Equal and Approved

24 Water Conditioner

Provide and fit as shown on the drawings1No Aquabion AB-H50 in line water conditioner as manufactured by:

Aquabion UK Ltd
25 High Street,
Corsham,
Wiltshire,
SN13 0ES

Tel: 01380 609395
Email: info@aquabion-uk.com

Or Equal and Approved

26 Point of Use Electric Water Heaters

Provide and Fit 4No 10 litre unvented hot water heaters in the Stephenson building as shown on the drawings.

Water heaters to be as model Andis Lux 10UR, 3KW complete with all necessary expansion and pressure relief ancillaries and as manufactured by:

Ariston
Artisan Building,
Hillbottom Rd,
High Wycombe
HP12 4HJ
Tel: 0333 240 8777
Email: https://www.ariston.com/en-uk/support

27 Thermostatic Blending Valves

Where indicated on the tender drawings provide and fit TMV3 15mm and 22mm thermostatic blending valves complete with isolation valves, strainers and check valves.

Valves to be as contractors' choice

28 Thermostatic Balancing Valves

Where indicated on the tender drawings, provide and fit 15mm thermal balancing valves which shall be installed as close to the associated blending valves as possible and be as model 2900 as manufactured by:

Hattersley
Epsilon Terrace,
West Road,
Ipswich,
Suffolk,
IP3 9FJ,:
Tel: 0333 240 8777

Or Equal and Approved

29 Shower Panels

Where indicated on the tender drawings provide and fit Delabie SPORTING 2 time flow shower panels complete with soft-touch operation, automatic mechanical flush with every use, time flow ~30 seconds, flow rate 6 lpm at 3 bar, tamperproof, scale-resistant fixed shower head with automatic flow rate regulation, adjustable spray, accessible filters and non-return valves and Integrated stopcock.

30 Flow Restrictors

Wash hand basins and sinks to be fitted with combined flow restrictor/ball isolation valves as model CP961 manufactured by:

Cottam and Preedy
Bishopsgate Works,
68 Lower City Road,
Tividale,
West Midlands,
B69 2HF
Tel: 0121 552 5281
Email: enquiries@cottamandpreedy.co.uk

Or Equal and Approved

31 Trace Heating

New Cold Water pipework installed externally within the plant compound is to be trace heated using Raychem self-regulating cable to provide frost protection

32 MHRV Units

32.1 Changing Village

Provide and fit as shown on the drawings, 1No VES MAX31/B/FW/S heat recovery unit complete with control panel, and electric heater battery and capable of 1.6m^3/s @ 140Pa as manufactured by:

VES
Eagle Close
Chandlers Ford Industrial Estate
Chandlers Ford
Eastleigh
Hampshire
SO53 4NF
Tel: 02380 461150
Email: emailenquiries@ves.co.uk

Allow for commissioning by the manufacturer.

All the above as VES quotation reference Q1209490 dated 3rd October 2024

32.2 Community Studio

Provide and fit as shown on the drawings, 1No VES No. EVCB385-1/FW-E/EE/LT/G4/CPSC externally mounted Ecovent Counterflow heat recovery air handling unit complete with control panel, and electric heater battery and capable of 0.4m^3/s @ 100Pa as manufactured by:

VES
Eagle Close
Chandlers Ford Industrial Estate
Chandlers Ford
Eastleigh
Hampshire
SO53 4NF
Tel: 02380 461150
Email: emailenquiries@ves.co.uk

All the above as VES quotation reference Q1209490 dated 3rd October 2024

33 Heat Pump Installation

Provide and at fit within the Community Studio and Therapy rooms as shown on the drawings, 1No heat pump system comprising of outdoor unit, 4No ceiling cassette units and 3No room controllers all as manufactured by:

Mitsubishi Electric Europe B.V.,
Travellers Lane,
Hatfield,
Herts,
AL10 8XB
Tel: 01707 276100
Email: Hatfield.Technical@meuk.mee.com

As their quotation reference QUO-0004-552389/1 / 1 (Heat Pump Option)

The whole of the heat pump installation including controls wiring shall be carried out by a specialist Mitsubishi accredited sub-contractor.

34 Extract Fans

Provide and fit 7No Manrose ceiling mounted extract fans and associated ductwork and roof cowls as shown on the drawings and scheduled at the rear of this specification.

Fans as manufactured by:

Manrose
Unit 23, Suttons Park Avenue,
Earley,
Reading,
RG6 1AZ
Tel: 01753 691399
Email: sales@manrose.com

Or Equal and approved.

35 Grilles

Provide and fit 16No ceiling mounted grilles, plenum boxes and extract valves as shown on the drawings and scheduled at the rear of this specification.

Grilles as manufactured by:

Gilberts (Blackpool) Ltd
Clifton Rd,
Blackpool,
Lancashire
FY4 4QT
Tel: 01253 766911
Email: estimating@gilbertsblackpool.com
Or Equal and approved.

36 Ductwork

The duct installation shall be manufactured in full compliance with HVCA Specification DW 144.

Ductwork air flow leakage testing shall be undertaken in full compliance with HVCA DW 143.

Performance Standards of Ductwork: -.

Low Pressure - Class A

Leakage Classification - Class A

Positive & Negative Pressures Range - Class A

Include for al necessary access/cleaning access, regulating dampers, flexible ductwork etc.

All primary and secondary ductwork supports shall be included.

37 Pipework and Fittings

All new pipework installations to be carried out using Light gauge copper tubes in half hard temper in accordance with BS EN 1057 and BS EN 12449.

Pressfit or Capillary joints to BS EN 1254/1 shall be used

All copper pipe fittings used in conjunction with both external and internal installations shall conform to BS EN 1254/1.

All fittings shall be potable type i.e. containing lead free solder. Where end feed fittings are used the solder shall be of the lead free type.

Under no circumstances will fittings of duplex brass (i.e. hot pressed fittings and fittings containing beta brass) or fittings prone to dezincification be permitted.

The ends of tubes shall be correctly cleaned and all rough edges removed before any joint is made.

Tube formed bends may be used in concealed positions only, and shall be smooth and free from corrugation, backs of bends shall not be overstretched.

All pipework shall be supported by substantial brackets, hangers or clips of approved type.

The layout of the piping shall take into account expansion and contraction particularly at the ends of runs where changes of direction occur.

Include for all drilling of walls and slabs etc for fixing screws, rawlbolts, resin bonded bolts etc and for the fixings themselves.

Main walls or partition walls etc where pipes pass through sleeves shall not be considered as pipe supports.

Care must be taken to ensure that the axis of the pipe is parallel with the axis of the pipe ring or hanger.

Pipes shall have sufficient clearance behind for the proper application of the insulating material where necessary. The finished surface of any covering shall be at least 5mm from the walls etc., and the bare pipes shall be at least 10mm clear from adjacent walls etc.

Wherever possible the layout of the pipework shall take into account expansion. Ensure that hangers, anchors and expansion points meet this requirement. Adequate provision shall be made at all connections to plant and appliances to avoid stresses due to expansion and contraction.

Where the available pipework layout does not permit the above, proprietary manufacture guided stainless steel pre-expanded expansion bellows shall be used. In addition, at the recommended positions indicated by the bellows manufacturer, additional pipework guides and the necessary anchors shall be installed.

Generally pipes to have a gradient set to allow for venting and draining the system of not less than 25mm in 6 metres and pipes to be fitted clear of all walls and floors. Careful observation of parallels and symmetry of arrangement is required throughout and in special instances the gradient of pipework may be lessened in order that this may be maintained.

All pipe passing through walls, floors, ceilings, etc. shall be provided with an oversize pipe sleeve of the same material as the pipe cut to finish flush with the surface of the building fabric.

38 Roof Ductwork/Plant Bracketry

All roof plant and ductwork shall be installed on proprietary demountable brackets such as big foot H frame or similar.

Care shall be taken to ensure roof coverings are fully protected by installing an additional layer of felt beneath the feet of all brackets.

39 Valves

All valves shall be as Oventrop or equal and approved

SERVICE	< or = 50mm	>50mm
Isolation	Oventrop 107 90	Oventrop 104 82
Lockshield	Oventrop 107 92	-
Check	Oventrop 107 50	Oventrop 107 25
Drain Cocks	Oventrop 103 20	-

40 Thermal Insulation

The whole of the new heating, domestic water pipework installations and ductwork installations shall be insulated in accordance with BS 5422:2001, BS 5970:2001 and executed by Specialist Contractors.

Pipework in the plant room to be isogenopak finished and Identification banding shall be fitted throughout in accordance with BS1710.

Where pipework concealed within the wall insulation (i.e. to shower panels) the contractor shall utilise Armaflex insulation, 9mm thick.

Allow for aluminium pipe insulation cladding to the external cold water pipework within air source heat enclosure and for insulated aluminium valve boxes to external valves.

Exposed ductwork on roofs to be aluminium clad.

41 Building Management System (CDP)

41.1 General

The controls package is a contractors design portion and will be developed by the BMS specialist with further liaison with Strebel (ASHP) and VES (MHRV Units) to ensure all manufacturer supplied sensors/standalone controls etc are incorporated.

The new BMS shall be based around Trend IQ4E (or equal and approved) and incorporate the following items:

Air Source Heat Pump Installation
MHRV units
Heating Pump
Hot water Pump
Cold Water Booster Set
Pressurisation Plant
Inputs for Electric Meter Monitoring (7 No)

All necessary loose controls (motorised valves, actuators, sensors etc) shall be provided by the controls specialist.

All controls wiring to be carried out by the specialist sub-contractor

The specialist controls supplier shall submit their design drawings and controls strategy for comment by the CA prior to construction.

41.2 Air Source Heat Pump

The controls specialist shall liaise with Strebel to co-ordinate the manufacturers controls into the BMS and provide time control, optimisation, weather compensation and fault signalling.

41.3 Changing Village Ventilation

The ventilation plant shall be time controlled and shall initially be set to operate at low speed on activation to provide background ventilation (volume flow rate to be confirmed).

Humidistats shall be provided in the changing area (either surface mounted or within the extract air) which will then control the ventilation plant up to its full duty point.

41.4 Community Studio Ventilation

The ventilation plant shall be time controlled via PIR occupancy sensors and shall initially be set to operate at low speed on activation to provide background ventilation (volume flow rate to be confirmed).

CO2 detectors shall be provided in the studio (either surface mounted or within the extract air) which will then control the ventilation plant up to its full duty point.

42 Chlorination

All new domestic water pipework is to flushed and chlorinated in accordance with BS8558

43 Water Treatment

Allow for the new ASHP installation to be chemically treated as manufacturers recommendations, including provision of suitable anti-freeze if required.

44 Commissioning and Testing

Carry out all inspections, tests and commissioning in accordance with the requirements of the appropriate CIBSE Commissioning Codes, BRISA Guides, Building Regulations, IEE Wiring Regulations, manufacturers' requirements, and the requirements and recommendations of any other certifying bodies.

After commissioning and prior to handover, ensure all consumable items such as filters, strainers etc are thoroughly cleaned.

Provide all necessary original certifications at Practical Completion Stage. These certificates include, but are not limited to:

- Pipework Pressure Test Certificates
- Water Treatment/Inhibitor Certificates
- Chlorination Certificates
- Ductwork Commission Certificates
- Air Source Heat pump commissioning Certificates
- Heat Pump Installation Commission Certificates

45 Legionella Risk Assessment

On completion the installation, the contractor shall allow to complete a Legionella Risk Assessment in accordance with the Health and Safety at Work etc Act 1974 (HSWA), The Management of Health and Safety at Work Regulations (MHSWR), the Control of Substances Hazardous to Health Regulations 2002 (COSHH) and The Approved Code of Practice: Legionnaires' disease: The control of Legionella bacteria in water systems (L8)

46 Summary of Tender for Mechanical Services

	MAIN SUMMARY			
1	Strip Out and Removals			
2	Supply and Installation of new Electric Radiant Panels			
3	Supply and Installation of new heat pump system to community room/therapy rooms complete including commissioning			
4	Supply and Installation of underfloor heating system to changing village complete including commissioning.			
5	Supply and Installation of Air Source Heat Pump including thermal store, hot water cylinder etc. complete including commissioning.			
6	Heating Installation within plant room (excluding Item 5 above)			
7	Supply and Installation of new hot and cold water system complete excluding shower panels			
8	Supply and installation of shower panels.			
9	Supply and Installation of new MHRV system to changing village complete including commissioning			
10	Supply and Installation of new MHRV system to community studio complete including commissioning			
11	Supply and Installation of new local extract fans complete			
12	Supply and Installation of new above ground drainage complete			
13	Design, Supply and Installation of new BMS controls complete			
14	Thermal Insulation to pipework including trace heating			

	MAIN SUMMARY (Continued)			
15	Thermal Insulation to Ductwork			
16	Legionella Risk Assessment			
16	Water Treatment			
17	Chlorination			
18	Handover Information (Record Drawings ,O&M Manuals, Valve Charts)			
19	Any other items (contractor to state)			
	TOTAL MECHANICAL SERVICES			

47 Appendix 1 Extract Fan Schedule

EXTRACT FAN SCHEDULE								
Ref	**Location**	**Fan**						
		Manufacturer	**Model**	**Type**	**Height mm**	**Length mm**	**Volume (ls)**	**Pressure (Pa)**
EF01	Access WC	Manrose	X5	QF100TX5OP	160	160	15	20
EF02	Office	Manrose	X5	QF100SX5OP	160	160	10	20
EF03	Kitchen	Manrose	X5	QF100HTX5OP	160	160	23	10
EF04	Access WC	Manrose	X5	QF100TX5OP	160	160	15	20
EF05	WC	Manrose	X5	QF100TX5OP	160	160	15	20
EF06	Kitchenette	Manrose	X5	QF100HTX5OP	160	160	10	20
EF07	Staff Room	Manrose	X5	QF100HTX5OP	160	160	10	20

48 Appendix 2 Grille Schedule

GRILLE SCHEDULE								
Ref	**Location**	**No Off**						
			Manufacturer	**Model**	**Height mm**	**Length mm**	**Volume (ls)**	**Pressure (Pa)**
SG01	Community Studio	3	Gilberts	DG4	300	300	135	6
SG02	Changing Village	5	Gilberts	DG4	375	375	200	6
SG03	Changing Village	2	Gilberts	DG3	375	375	200	6
EG01	Community Studio	3	Gilberts	DG4	300	300	135	8
EV	Changing Village	47	Gilberts	GX150	202 Dia		30	45

49 Appendix 3 Radiant Panel Schedule

ELECTRIC RADIANT PANEL SCHEDULE							
Ref	**Emitter**						
	Manufacturer	**Type**	**Height (mm)**	**Length (mm)**	**Depth (mm)**	**Model**	**Output (w)**
RP01	BN Thermic	RP3	25	595	595	RP3-03	300
RP02	BN Thermic	RP3	25	1192	595	RP3-06	600
RP03	BN Thermic	RP3	25	1192	595	RP3-06	600
RP04	BN Thermic	RP3	25	1192	595	RP3-06	600
RP05	BN Thermic	RP3	25	1192	595	RP3-06	600
RP06	BN Thermic	RP3	25	595	595	RP3-03	300
RP07	BN Thermic	RP3	25	595	595	RP3-03	300
RP08	BN Thermic	RP3	25	595	595	RP3-03	300
RP09	BN Thermic	RP3	25	1192	595	RP3-06	600
RP10	BN Thermic	RP3	25	595	595	RP3-03	300
RP11	BN Thermic	RP3	25	1192	595	RP3-06	600
RP12	BN Thermic	RP3	25	1192	595	RP3-06	600
RP13	BN Thermic	RP3	25	1192	595	RP3-06	600
RP14	BN Thermic	RP3	25	595	595	RP3-03	300
RP15	BN Thermic	RP3	25	595	595	RP3-03	300
RP16	BN Thermic	RP3	25	1192	595	RP3-06	600
RP17	BN Thermic	RP3	25	1192	595	RP3-06	600

50 Appendix 4 Electric Water Heater Schedule

ELECTRIC WATER HEATER SCHEDULE								
Ref	**Heater**							
	Manufacturer	**Type**	**Capacity (litres)**	**Height (mm)**	**Length (mm)**	**Depth (mm)**	**Model**	**Rating (KW)**
EWH01	Ariston	Andris Lux	10	360	360	298	10 U	3.0
EWH02	Ariston	Andris Lux	15	360	360	346	15 U	3.0
EWH03	Ariston	Andris Lux	15	360	360	346	15 U	3.0
EWH04	Ariston	Andris Lux	15	360	360	346	15 U	3.0

51 MHRV Unit Technical Submission and Quotation

Better air for the built environment

Eagle Close, Chandlers Ford Industrial Estate,
Chandlers Ford, Eastleigh, Hampshire, SO53 4NF
Tel: 08448 15 60 60 Fax: 02380 26 12 04

PB Design

9 Bournside
Brickhill
Bedford.
MK41 7EG

Quotation

Customer Reference:
Ware Lido

Customer Name:	Peter Murphy
Company Name:	PB Design
Tel Number:	07772 261 184
Account Number	

Quotation Number:	Q1209490
Quotation Date:	03/10/2024
Your Sales Contact:	Paul Neville

Required?	Item	Qnty	Part Number	Description	Price Each	Total Price
☐	1	1	MAX31/B/FW/S	AHU Unit Reference :Pool Changing	£24,829.56	£24,829.56
☐	1	1	CPS/FT/S	Bespoke Control Panel - Fitted	£6,024.26	£6,024.26
☐	2	1	EVCB385-1/FW-E/EE/LT/G4/CPSC	Fan Unit Unit Ref: : Community Room	£5,008.27	£5,008.27
☐	2	1	EHEVCB3/12KW/1X3	Electric Heater Battery	£199.40	£199.40
☐	3	1	CPEVCB3/12KW-3/BACMS	BlueSense Control Package BACnet MSTP Integration port Unit Ref: Community Room	£2,154.10	£2,154.10
☐	3	1	PSEL900463	Commissioning Tool	£248.09	£248.09
☐	4	1	SERVICE/SALES/POSTINST/CP/S	Post Installation and Controls Check :- VES engineer to attend site within normal working hours to check the control component installation, loop set-up and ensure system is configured for optimum energy saving prior to setting the AHU to work. Conditions Apply: When you are ready to book in your visit please contact the Customer Services Team on Tel: 08448 156 060 Ext 652 or email customerservices@ves.co.uk quoting your Sales Order No. *Please Note: A minimum of 8 - 10 weeks notice required prior to site visit*	£669.50	£669.50

Sub Total £39,133.18

Required?	Item	Qnty	Part Number	Description	Price Each	Total Price

** Standard Delivery Charge, based on 5% of the order value.	£1,956.66
Grand Total (Excl. VAT)	£41,089.84

Please note: BIM Files are available for these products, upon request. Please be advised they will be according to the current quotation and may be subject to later modification. If the quotation entails bespoke units, the CAD outline, will be the dimensions that are manufactured to and will supersede any BIM's previously supplied.

Please contact your local RSE to obtain current product lead-times prior to ordering.

*

Thank you for your enquiry. Our quotation is valid for 7 days from the above date. Should you wish to purchase these items please state the VES quotation number on your purchase order.

As required please mark the boxes corresponding to each item line required, confirming the quantity, return the completed document to VES together with your Purchase Order. Stating Invoice address, delivery address and requested delivery date.

** Standard delivery excludes offloading, dedicated vehicles, specialist vehicles to suit site conditions, FORs certified delivery, delivery outside UK mainland and timed delivery, unless otherwise stated within this quotation. Carriage will be based on delivery location. **Please note should the delivery location change or should deliveries be split after order receipt the carriage charge is subject to change.** For orders below £1000.00, a minimum carriage charge of £40.00 will be made. For deliveries beyond the UK mainland, please contact the sales

Visit our Corporate website: www.ves.co.uk

Sales Freephone 0800 31 66 000

BSRIA BG&ES BUILDING & ENGINEERING SERVICES ASSOCIATION a new brand; a new HVCA bsi. ISO 9001 Quality Management Q 05375

TECHNICAL SPECIFICATION SHEET

Better air for the built environment

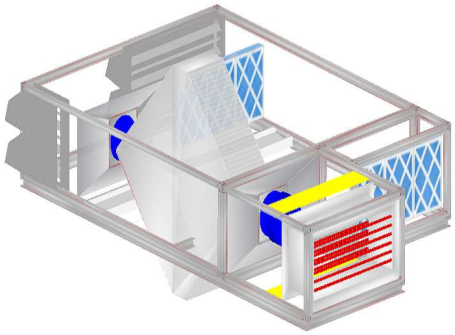
Version VES 3.00

PROJECT DETAILS

Project no	Q1209490\Rev-00\	**Date**	03 Oct 2024	**Unit No**	Q1209490-01-0	**Project Reference**	Ware Lido

UNIT DETAILS

Unit Model	MAX31/B/FW/S			
Customer Reference	Pool Changing			
Unit Location	External			
Access Side	Right			
Frame Construction	50mm Post - 50mm Panels			
Frame Finish	STD R7004 Powdercoated			
Panel Insulation	Mineral Wool - 50mm			
Panel Internal Sheet	Std P/Coat Galv. Steel - (0.8)			
Panel External Sheet	Std P/Coat Galv. Steel - (0.8)			
Roof Type	Twin Pitched Roof			
Roof Height	125 mm			
Base Frame	75mm Sheet Steel (3)			
Width	3100 mm			
Height	850 mm			
Length	5075 mm			
Weight Approx +-5%	1460.5 kg			
Section Quantity	5			
	Supply	**Extract**		
Duty	1.60	1.60	m^3/s	
External Pressure	140	140	Pa	
Total Pressure	325	359	Pa	
SFP	0.56	0.60	W/l/s	
Unit Combined SFP	1.16		W/l/s	
Unit Rating & Performance To	EN13053:2006 +A1:2011			
Unit Mechanical Construction To	EN1886:2007			
Leakage Class	L2 to EN1886:2007			



SECTION WEIGHTS AND DIMENSIONS

Section No	Width	Height	Length	Weight Approx +-5%
A	3100 mm	850 mm	3550 mm	NaN kg
B	1550 mm	850 mm	1525 mm	260 kg
C	1550 mm	850 mm	600 mm	115 kg

SUPPLY SIDE SECTION A

001 INLET SECTION

Weather Hood Galv

Width	1450 mm	**Height**	750 mm
Velocity	1.47 m/s	**Pressure Drop**	7.00 Pa
Finish	Painted	**Position**	Onair

Fresh Air Damper

Width	1450 mm	**Height**	750 mm
Velocity	1.47 m/s	**Pressure Drop**	7.00 Pa
Material	Aluminium	**Position**	Onair
Finish	None	**Mounting**	Internal

EXTRAS

ACCESSORIES

24V Open Close Damper Motor

002 PANEL FILTERS

Stage #	1	**Face Velocity**	1.85 m/s
Type	Panel	**Pressure Drop**	23 Pa
Media	Cotton / Synthetic Fibre	**Withdrawl**	Front
Filter Grade	G4 (ISO Coarse 65%)	**Framework Material/Type**	
Filter Type	AP	**Spare Filters**	None

EXTRAS

ACCESSORIES

Filter Pressure Switch - Fitted

DUAL SIDE SECTION A

`

`

003 PLATE HEAT EXCHANGER

Material		GOLD_EPOXY_PAINTED_EXTRA	**Condensate Rate**		-24.75 L/h
			Connection Diameter		15 mm
Fresh Air			**Extract Air**		
Air Volume		1.60 m³/s	**Air Volume**		1.60 m³/s
kW Rating		45.85 kW	**kW Rating**		45.85 kW
Wet Efficiency		91.10 %	**Wet Efficiency**		91.10 %
Pressure Drop		154.3	**Pressure Drop**		154.3
Inlet	Temperature	-4.00 °C	**Inlet**	Temperature	22.00 °C
	Humidity	100.0 %		Humidity	60.0 %
Outlet	Temperature	19.69 °C	**Outlet**	Temperature	7.33 °C
	Humidity	19.03 %		Humidity	98.98 %

EXTRAS

ACCESSORIES

24V Modulating Damper Motor c/w IP66 Rating

Coated drainpan.

NOTES

Please Note. This unit has a channel base. Please ensure that you mount the unit sufficiently clear of the floor to enable you to fit the required depth of trap on the drain pan. Failure to trap the pan sufficiently deep enough will lead to water leaking from this unit.

DRAIN PAN

Material	**Drain size**
Galvanised Steel	3000 mm

SUPPLY SIDE SECTION B

004 SUPPLY PLENUM FAN - SINGLE FAN

Model	GR40I-ZID.DC.CR-116895/A01	**Working RPM**	1853 RPM
Efficiency	63.2 %	**Maximum Speed**	2360 RPM
Sound Power	80 dbW	**Fan Speed % of Max RPM**	78.52 %
Fan Blade Type	Backward Curve	**Absorbed Power**	0.89 kW
Fan Finish	Standard	**Motor Type:**	EC (0-10 volt input required for speed control)
Motor Power (Each)	2.10 kW	**Motor Voltage**	400
FLC (Each)	3.40 A	**Number of Fans**	1

Frequency	**63 Hz**	**125 Hz**	**250 Hz**	**500 Hz**	**1 kHz**	**2 kHz**	**4 kHz**	**8 kHz**
Inlet-db	73	75	73	70	63	62	62	64
Outlet-db	73	83	77	77	75	70	67	69

EXTRAS

ACCESSORIES

Airflow Pressure Switch - Fitted

NOTES

The fan and motor sit on a common sub-frame within the casing that is fully vibration isolated.

The fan has a fitted inlet flexible connection.

Where this unit has to pass through restricted access ways, it may be necessary to supply the fan section in more than one piece. This will then require the fan/motor assembly and casing to be bolted together on-site by others.

005 PLENUM

Length	300.0 mm

006 ELECTRIC HEATER

Air On DB	-4.0 °C	**Air Off DB**	22.0 °C
Maximum Heater Duty	54.0 kW	**Total Load**	50.4 kW
Stages	1	**Pressure Drop**	0.00 Pa
Voltage	Three phase	**Velocity**	2.06 m/s
Control	Thyristor		

EXTRAS

ACCESSORIES

Fitted & Pre-Wired Isolator

007 OUTLET SECTION

50mm Spigot Galv

Width	1450 mm	**Height**	750 mm
Velocity	1.47 m/s	**Pressure Drop**	1.00 Pa
Finish	Painted	**Position**	Ofair

EXHAUST SIDE SECTION C

008 INLET SECTION

50mm Spigot Galv

Width	1450 mm	**Height**	750 mm
Velocity	1.47 m/s	**Pressure Drop**	1.00 Pa
Finish	Painted	**Position**	Onair

009 PANEL FILTERS

Stage #	1	**Face Velocity**	1.85 m/s
Type	Panel	**Pressure Drop**	23 Pa
Media	Cotton / Synthetic Fibre	**Withdrawl**	Rear
Filter Grade	G4 (ISO Coarse 65%)	**Framework Material/Type**	
Filter Type	AP	**Spare Filters**	None

EXTRAS

ACCESSORIES

Filter Pressure Switch - Fitted

EXHAUST SIDE SECTION A

0010 EXHAUST PLENUM FAN - SINGLE FAN

Model	GR40I-ZID.DC.CR-116895/A01	**Working RPM**	1886 RPM
Efficiency	64.4 %	**Maximum Speed**	2360 RPM
Sound Power	80 dbW	**Fan Speed % of Max RPM**	79.92 %
Fan Blade Type	Backward Curve	**Absorbed Power**	0.96 kW
Fan Finish	Epoxy	**Motor Type:**	EC (0-10 volt input required for speed control)
Motor Power (Each)	2.10 kW	**Motor Voltage**	400
FLC (Each)	3.40 A	**Number of Fans**	1

Frequency	**63 Hz**	**125 Hz**	**250 Hz**	**500 Hz**	**1 kHz**	**2 kHz**	**4 kHz**	**8 kHz**
Inlet-db	73	76	73	70	63	62	62	64
Outlet-db	73	84	78	77	75	70	67	69

EXTRAS

ACCESSORIES

Airflow Pressure Switch - Fitted

Liftoff door - end of section.

NOTES

The fan and motor sit on a common sub-frame within the casing that is fully vibration isolated.

The fan has a fitted inlet flexible connection.

Where this unit has to pass through restricted access ways, it may be necessary to supply the fan section in more than one piece. This will then require the fan/motor assembly and casing to be bolted together on-site by others.

0011 OUTLET SECTION

Exhaust Air Damper

Width	600 mm	**Height**	750 mm
Velocity	3.56 m/s	**Pressure Drop**	41.00 Pa
Material	Aluminium	**Position**	Lfair
Finish	None	**Mounting**	Internal

Weather Hood Galv

Width	600 mm	**Height**	750 mm
Velocity	3.56 m/s	**Pressure Drop**	41.00 Pa
Finish	Painted	**Position**	Lfair

EXTRAS

ACCESSORIES

24V Open Close Damper Motor c/w IP66 Rating

Powdercoated damper

AHU ACOUSTIC DATA

Connection Noise Spectra - Supply Section

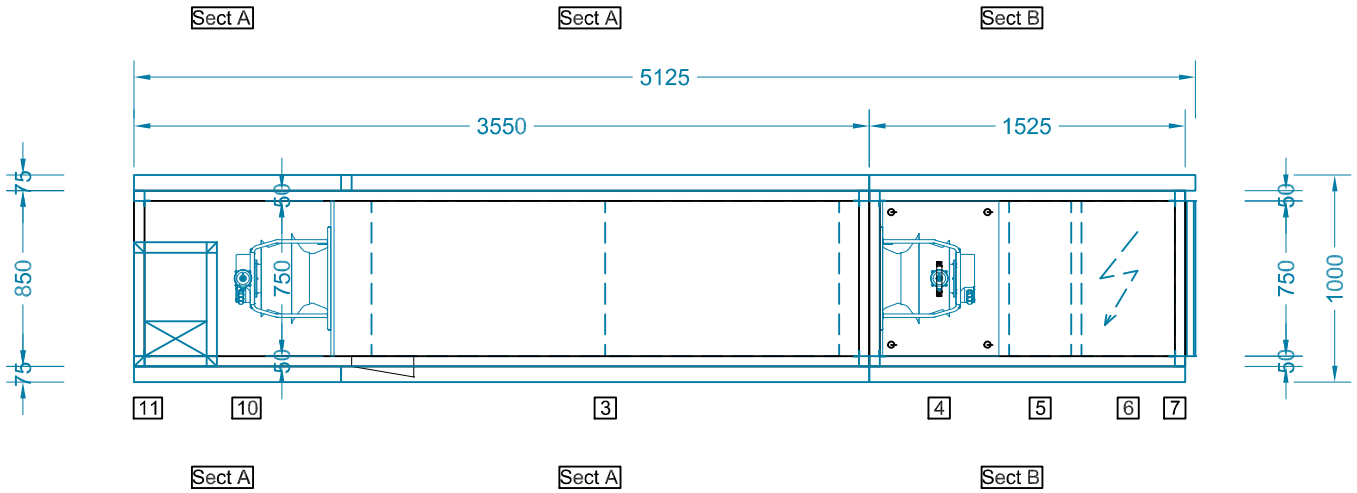
Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	Overall dB
Inlet Linear Sound Pressure Level L_pdB	69	69	64	60	53	52	49	51	62
Outlet Linear Sound Pressure Level L_pdB	70	78	70	71	70	65	60	62	74

Connection Noise Spectra - Extract Section

Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	Overall dB
Inlet Linear Sound Pressure Level L_pdB	69	70	64	60	53	52	49	51	62
Outlet Linear Sound Pressure Level L_pdB	71	80	72	72	72	67	64	66	76

Casing Noise Breakout Spectrum at 3m Distance

Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Supply Fan Power Spectrum L_WdB	73	83	77	77	75	70	67	69
Extract Fan Power Spectrum L_WdB	73	84	78	77	75	70	67	69
Combined Fan Power Spectrum L_WdB	76	87	81	80	78	73	70	72
Case Insertion Reduction	13	17	18	35	39	39	38	38
Reduction for 3m Distance	18	18	18	18	18	18	18	18
Resultant Linear Sound Pressure Level at 3m L_pdB	45	52	45	27	21	16	14	16
NR Level at 3m	36							
Resultant A-Weighted Sound Pressure Level at 3m L_pdBA	19	36	36	24	21	17	15	15



NOTES:

Section A: Weight +-5% = 124Kgs
Components

1	Inlet Section	350 mm
2	Panel Filter	500 mm

Section A: Weight +-5% = 819Kgs
Components

3	Plate Heat Exchanger	2450 mm

Section B: Weight +-5% = 260Kgs
Components

4	Plug Fan	575 mm
5	Plenum	300 mm
6	Electric Heat Coil	450 mm
7	Outlet Section	mm

Section C: Weight +-5% = 115Kgs
Components

8	Inlet Section	mm
9	Panel Filter	500 mm

Section A: Weight +-5% = 142Kgs
Components

10	Plug Fan	850 mm
11	Outlet Section	mm

ELEVATION FRONT

VES ANDOVER LTD.
EAGLE CLOSE,
CHANDLERS FORD INDUSTRIAL ESTATE,
CHANDLERS FORD, EASTLEIGH,
HAMPSHIRE, ENGLAND, SO53 4NF
TEL: (08448) 15 60 60
FAX: (023) 80261204
EMAIL: vesltd@ves.co.uk
WEB SITE: www.ves.co.uk

PROJECT: Ware Lido

UNIT REFERENCE: Pool Changing

MODEL: MAX31/B/FW/S

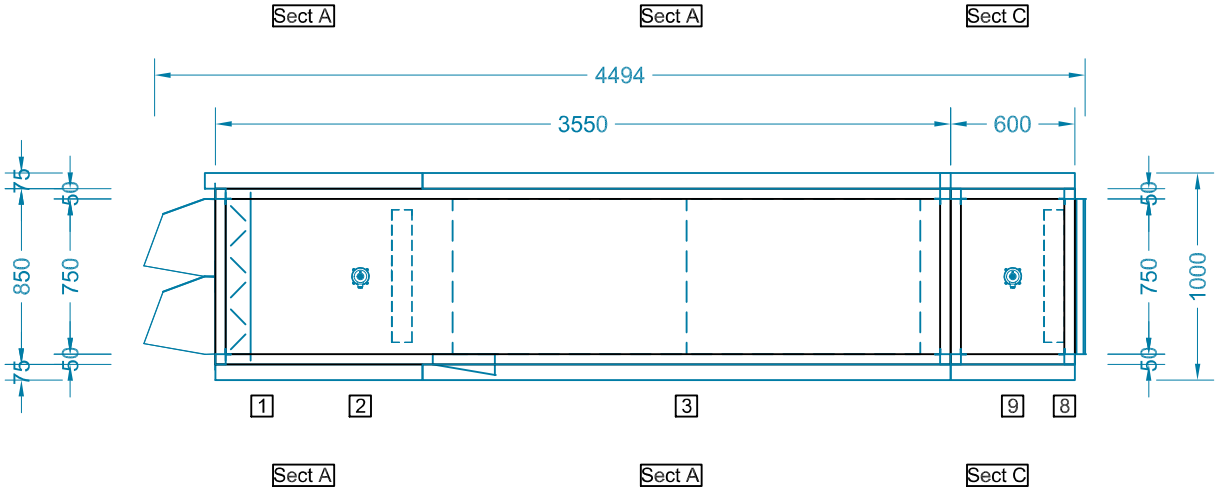
AHU No.:	QUANTITY.:	DUTY:	DRAWN:	APPROVED:	UNIT No.:
1	1	1.6/1.6 M3/S	DATE:	DATE:	1209490-1-0

ALL DIMENSIONS IN mm | DO NOT SCALE

IF IN DOUBT PLEASE CONTACT VES DESIGN OFFICE

No.:	REVISION.:	DATE:

A4 SELECTION SYSTEM SKETCH OUTLINE DRAWING BORDER : ID REF: TBC



NOTES:

Section A: Weight +-5% = 124Kgs
Components

1	Inlet Section	350 mm
2	Panel Filter	500 mm

Section A: Weight +-5% = 819Kgs
Components

3	Plate Heat Exchanger	2450 mm

Section B: Weight +-5% = 260Kgs
Components

4	Plug Fan	575 mm
5	Plenum	300 mm
6	Electric Heat Coil	450 mm
7	Outlet Section	mm

Section C: Weight +-5% = 115Kgs
Components

8	Inlet Section	mm
9	Panel Filter	500 mm

Section A: Weight +-5% = 142Kgs
Components

10	Plug Fan	850 mm
11	Outlet Section	mm

ELEVATION BACK

VES ANDOVER LTD.
EAGLE CLOSE,
CHANDLERS FORD INDUSTRIAL ESTATE,
CHANDLERS FORD, EASTLEIGH,
HAMPSHIRE, ENGLAND, S053 4NF
TEL: (08448) 15 60 60
FAX: (023) 80261204
EMAIL: vesltd@ves.co.uk
WEB SITE: www.ves.co.uk

PROJECT: Ware Lido

UNIT REFERENCE: Pool Changing

MODEL: MAX31/B/FW/S

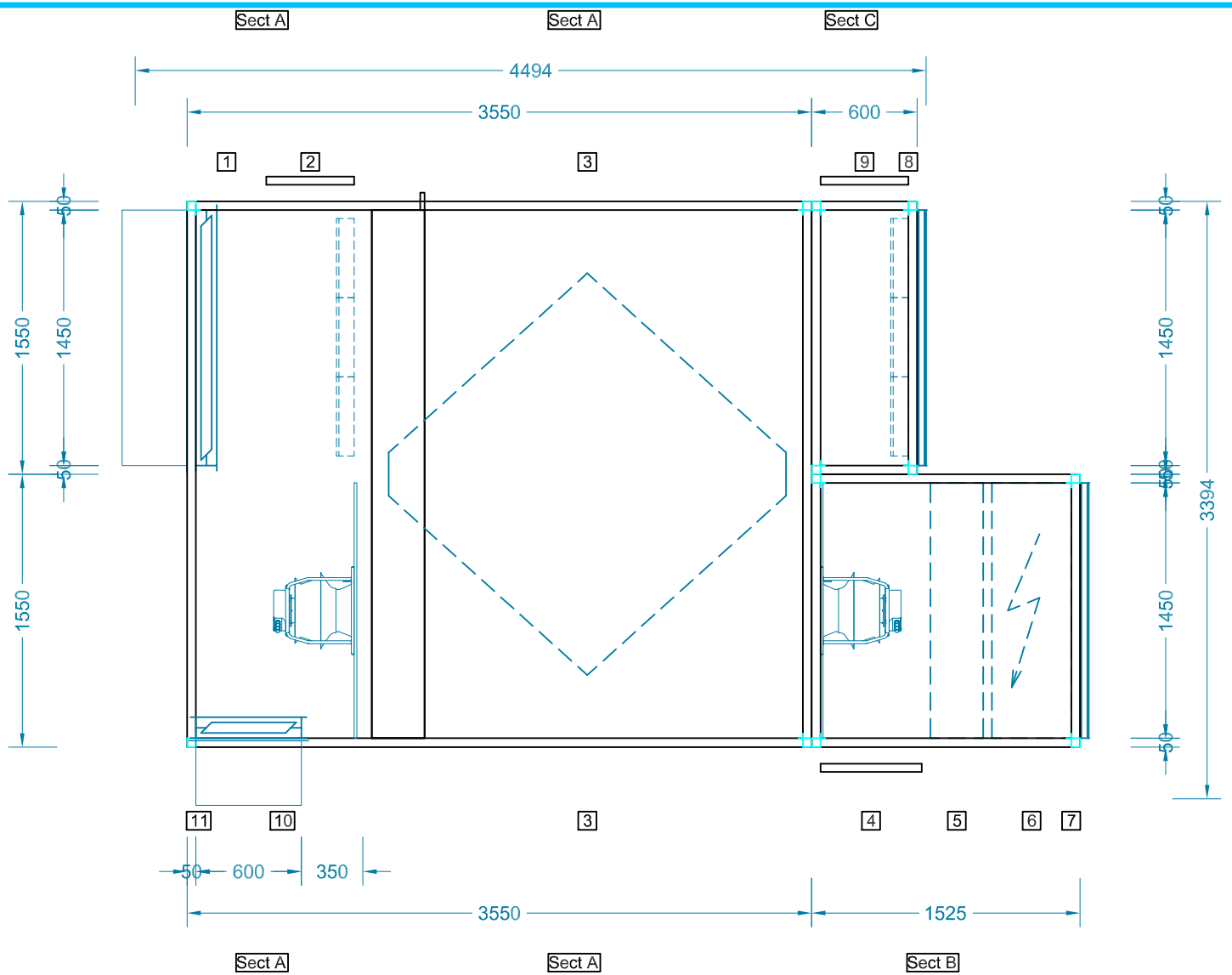
AHU No.:	QUANTITY.:	DUTY:	DRAWN:	APPROVED:	UNIT No.:
1	1	1.6/1.6 M3/S	DATE:	DATE:	1209490-1-0

ALL DIMENSIONS IN mm | DO NOT SCALE

IF IN DOUBT PLEASE CONTACT VES DESIGN OFFICE

No.:	REVISION.:	DATE:

A4 SELECTION SYSTEM SKETCH OUTLINE DRAWING BORDER : ID REF: TBC



PLAN DECK

NOTES:

Section A: Weight +-5% = 124Kgs
Components

1	Inlet Section	350 mm
2	Panel Filter	500 mm

Section A: Weight +-5% = 819Kgs
Components

3	Plate Heat Exchanger	2450 mm

Section B: Weight +-5% = 260Kgs
Components

4	Plug Fan	575 mm
5	Plenum	300 mm
6	Electric Heat Coil	450 mm
7	Outlet Section	mm

Section C: Weight +-5% = 115Kgs
Components

8	Inlet Section	mm
9	Panel Filter	500 mm

Section A: Weight +-5% = 142Kgs
Components

10	Plug Fan	850 mm
11	Outlet Section	mm

VES ANDOVER LTD.
EAGLE CLOSE,
CHANDLERS FORD INDUSTRIAL ESTATE,
CHANDLERS FORD, EASTLEIGH,
HAMPSHIRE, ENGLAND, SO53 4NF
TEL: (08448) 15 60 60
FAX: (023) 80261204
EMAIL: vesltd@ves.co.uk
WEB SITE: www.ves.co.uk

PROJECT: Ware Lido

UNIT REFERENCE: Pool Changing

MODEL: MAX31/B/FW/S

AHU No.:	QUANTITY.:	DUTY:	DRAWN:	APPROVED:	UNIT No.:
1	1	1.6/1.6 M3/S	DATE:	DATE:	1209490-1-0

ALL DIMENSIONS IN mm | DO NOT SCALE

IF IN DOUBT PLEASE CONTACT VES DESIGN OFFICE

No.:	REVISION.:	DATE:

A4 SELECTION SYSTEM SKETCH OUTLINE DRAWING BORDER : ID REF: TBC

VES Ltd,
Eagle Close, Chandlers Ford Industrial Estate,
Chandlers Ford, Eastleigh, Hampshire, SO53 4NF
+44 (0)23 8046 1150 | info@ves.co.uk | ves.co.uk

Bespoke Control Panel Model CPS/S

Control Panel Specification
Control panel utilising the latest VES BlueSense technology and designed around a Siemens Climatix PLC platform. All necessary software is pre-loaded and tested, with the controls philosophy ready to be optimised to minimise system energy usage. Customer terminals, component labelling and MCB protection are provided for ease of installation and maintenance. All signal cabling is tri-rated, protected within slotted conduit and terminated with ferrules.

BMS Integration
BACnet MS/TP open protocol communication port is supplied to support system integration. Standard object list and integration guide available upon request. Integration by others

Basic integration is available via remote volt-free enable contacts and common trip and run output indications via volt-free contacts. Enable input may be from remote BMS, time clock or switch etc.

User Interface
Remote wall mounted IP30 controller (Roller HMI) is provided for intuitive user adjustment of temperature set point, time clock programming and off/on/timer selection. System status and alarms displayed in plain text. Pin protected access to commissioning levels. Interconnection low voltage cable by others

Enclosure Specification
Main panel IP54 powder coated RAL7035 steel enclosure mounted to the AHU and pre-wired to the AHU internal components only, installation and wiring of external components & power supply by others. Door-interlocked isolator accepts a single power supply for all AHU mounted components.

Temperature Control Philosophy
Cascade control for close and stable return/room air temperature control with adjustable PID loop control and adjustable dead band. Alternatively, supply control can be selected via HMI if preferred. Close control stability may be impacted by external influences such as site conditions, space usage/environment and other external influences.

Supply Fan Control
1 x supply fan starter, 3PH - 400VAC 2.1kW interlocked to AHU mounted EC fan motor for demand control and commissioning.
Fixed speed operation for normal running. Speed setpoint adjustable within pin protected commissioning levels.

Extract Fan Control
1 x extract fan starter, 3PH - 400VAC 2.1kW interlocked to AHU mounted EC fan motor for demand control and commissioning.
Fixed speed operation for normal running. Speed setpoint adjustable within pin protected commissioning levels.

Heat Recovery Control
Face and bypass damper automatically modulated to achieve the set point and hence maximum energy saving. Free heating, heat recovery, free cooling or cooling recovery is optimised prior to mechanical heating or cooling.

Main Heating Control
Electric heater thyristor control. Maximum load 54kW 3PH - 400VAC. Supply fan airflow interlock and run on timer adjustable on HMI.

Dirty Filter Indication
Common input for dirty filter differential pressure switches for alarm indication via HMI interface or via BMS.

Damper Control
1 x 24VAC open/close supply damper signal.
1 x 24VAC open/close extract damper signal.

Remote Shut Down
Fire alarm shut down via 24VDC input by others in series with panel enable to disable panel and AHU (Run on timer still applicable in EHB applications).
Volt-free shut down via removable link for hard wired connection to BMS system or other enable switch.

Auxiliary Volt-Free Contacts
Common trip indication for hardwire connection to BMS or other device. Maximum circuit protection 2A 230VAC.
Common run indication for hardwire connection to BMS or other device. Maximum circuit protection 2A 230VAC.

Additional Specification Requirements
Control panel design and build conforms to Form 1 standards.

Exclusions
Controls and commissioning excludes wiring, integration, air volume measurement, condenser operation and any item not specifically stated above. Estimated commissioning time assumes that the AHUs & controls will be fully installed and ready to run, aborted visits and additional time will be charged as quoted. Continuous, unrestricted and safe access to be provided. A normal day is 7.5 hours Monday to Friday 08.00 – 1700. No allowance has been made for out of hours working. A minimum of 20 days notice required prior to site visit.
Post installation commissioning not included within VES control panel cost or within sales order. Commissioning and set up of the VES control panel by others. VES commissioning can be ordered at a later date if later decided to be required.

Unit Ref: **: Community Room**

1 No. **EVCB385-1/FW-E/EE/LT/G4/CPSC** externally mounted Ecovent Counterflow heat recovery air handling unit.

Supply air volume **0.4**m^3/s of air against an external resistance of 100Pa.
Extract air volume **0.4**m^3/s of air against an external resistance of 100Pa.

Specific supply fan power **0.55**watts/litre/second at this duty.
Specific extract fan power **0.55**watts/litre/second at this duty.

This unit with low energy, high efficiency fans is constructed from tubular aluminium frame and 50mm double skinned galvanised steel panels, with resin bonded mineral wool slab infill. Mounted on support feet, the unit has the option of floor fixing with self-levelling feet, ***purchased separately*** or drop rods, ***supplied by others***. In this flat configuration, the unit has top access via the roof, with additional left or right access to filters through side panels.

Overall unit dimensions 2200mm long, 1800mm wide, 765mm high. Unit weight: 375kg.

Unit supplied with EC fan motors with built in speed control, overload and over current safety functions. If a VES control package is *not* supplied, additional inputs are required for fixed speed commissioning or remote variable speed.
The fan may be run at full speed by insertion of a link or modulated via either an external 0-10Volt input eg BMS, or remote manual potentiometer eg CFSC1

The unit can be supplied with a fitted, pre-wired and factory commissioned VES control panel or alternatively the electrical components within the unit are pre-wired to integral isolators, with the low voltage components to user terminals.

The supply side comprises the following components:

a: Inlet Cowl 450mm wide x 450mm high x 500mm Deep.

b: Pleated filter to grade G4, withdrawal through side access panel.

c: Premiere high efficiency plate heat exchanger using counterflow technology to achieve a reclaim rate of between 85% to 90% based on sensible conditions.

d: Supply EC fan, backward curved impellor, single inlet, running at 1680RPM and direct driven by a 0.56kW, 230Volt ac, 1 phase motor, with fitted quick change plug connector to pre-wired control panel or isolator. The fan is also fitted with external pressure ports piped to the outside of the case.
Full load current 2.8amps.

Sound Power Level Spectrum

Hz	63	125	250	500	1k	2k	4k	8k
PWL, dBW	70	66	62	49	46	46	39	33

Casing noise breakout; NR 36 at 1 metre and NR 30 at 3 metres.
dBA 40 at 1 metre and dBA 34 at 3 metres.

e: 12kW electric heater battery arranged in 1 x 3 ph step suitable for modulating Thyristor control. The elements are sheathed in tubular incalloy, with an internal nickel chromium powder. An over heat thermal cut out is fitted which must be wired in to the control circuitry together with a fan run-on timer, VES control panels include this feature.

f: Discharge spigot 450mm wide x 450mm high.

The exhaust side comprises the following components:

a: Inlet spigot 450mm wide x 450mm high.

b: Pleated filter to grade G4, withdrawal through side access panel.

c: Extract EC fan, backward curved impellor, single inlet, running at 1680RPM and direct driven by a 0.56kW, 230Volt ac, 1 phase motor, integral speed control, with fitted quick change plug connector to pre-wired control panel or isolator. The fan is also fitted with external pressure ports piped to the outside of the case.
Full load current 2.8amps.

Sound Power Level Spectrum

Hz	63	125	250	500	1k	2k	4k	8k
PWL, dBW	70	66	62	49	46	46	39	33

Casing noise breakout; NR 36 at 1 metre and NR 30 at 3 metres.
dBA 40 at 1 metre and dBA 34 at 3 metres.

d: Premier high efficiency plate heat exchanger with counterflow technology, with condensate drain pan. The efficiency stated is based on an extract air temperature of 21°C db / 50% RH, providing sensible heat recovery. Face and Bypass damper located onto exhaust side of plate heat exchanger, with 24Volt ac, modulating actuator to enable heating and or cooling recovery. This is controlled automatically when using a VES control panel.

e: Discharge Cowl 450mm wide x 450mm high x 500mm Deep.

Control Panel Option:

Integral control package fitted to the AHU, priced separately and described fully elsewhere
An alternative remote, wall mounted enclosure control panel is available, contact the sales office for details.

Qnty	***Description***	***Part Number***
1	**Fan Unit**	EVCB385-1/FW-E/EE/LT/G4/CPSC
1	Electric Heater Battery	EHEVCB3/12KW/1X3

Please specify left or right handings at time of ordering.

Unit Ref: Community Room

Control package utilizing the latest **BlueSense** technology optimised to minimise energy usage over the systems' full life cycle, *to include the following standard features*.

Chassis mounted and located within AHU controls compartment, with door-interlocked isolator and pre-wired to AHU internal components.

Fan control
Supply and extract fan starters with control signals directly connecting to EC fans or inverter speed controllers for demand control and commissioning

Demand control
Input from Air Quality for modulating applications
Input from PIR or switch for 2 speed High/Low applications

Temperature control. The temperature control mode can be selected, with accurate control options of supply air, return air or return air with supply limits being available at the user interface.

Heat exchanger control.
The face and bypass damper is automatically modulated to achieve temperature set point and hence maximum energy saving. Free heating, heat recovery, free cooling or cooling recovery is optimised prior to mechanical heating.

Heater control.
Modulating thyristor control of electric heater with independent safety circuit

Damper control. Inlet and return damper open signals, with option of either 24 Volt ac or 230 Volt ac auxiliary power supply.

Auxiliary connections
Fire alarm shut down, in response to 24 Volt dc input, *24vdc supplied by others*
Remote enable/disable via removable link, *volt free contacts supplied by others*
Common trip indication via volt free contacts
Run indication via volt free contacts.
Inlet and return damper, with option of either 24 Volt ac or 230 Volt ac auxiliary power supply.
Dirty filter differential pressure switch common inputs, 2 off.

All necessary fusing, labelling and terminals are located within the panel together with gland plate for cable entry to ease installation and maintenance.

Qnty	***Description***	***Part Number***
1	BlueSense Control Package	CPEVCB3/12KW-3/BACMS

BACnet MSTP Integration port

Additional remote User Interface options.
A remote mounted user interface to simplify end user control.

Qnty	***Description***	***Part Number***
1	Commissioning Tool	PSEL900463

52 Air Source Heat Pump Quotation

STREBEL HEATING TECHNOLOGY

Unit 10, Invincible Road
Farnborough
Hampshire
GU14 7QU

Company Reg. 01197182
VAT no. 212 7889 50

Quotation Ref 419104

E-mail: info@strebel.co.uk
Website: www.strebel.co.uk
Telephone 01276 685 422
Fax 01276 685 405

PB Design & Consultancy Ltd
Woodside Cottage
Wood Lane
Renhold
Bedford
MK41 0LT

VAT no.

Page	1
Customer no.	33074
Currency	GBP
Date of quotation	27/08/2024

Price valid 30 days from the date of quotation

Prices are Exclusive of VAT

Our ref. Jonathan Hunter
Your ref. Peter Murphy

Project
16089 - Ware Lido (Male/Female/Family Showers)

Product no.	*Product description*	*Qty.*	*Unit price*	*Discount*	*Total*
	.				
	BUDGET QUOTATION - SUBJECT TO APPROVAL				
	.				
801309	S-ASX-NT - 70 Air to Water Heat Pump	1.00	47,765.00	0.00%	47,765.00
	The S-ASX-NT 70 is a monobloc design air-to-water heat pump comprising of three fans and two scroll compressors. The S-ASX-NT range utilises R290 refrigerant and a stainless-steel brazed heat exchanger to generate LTHW at between 35°C and 72°C. The unit comes with soft start compressor, low noise acoustic set up and a modulating pump within its casing to transfer the system water from the S-ASX heat pump to a thermal store. Technical Data: Output at A7/W35 is 66.7 KW SCOP at 35°C is 4.06 (EN 14511) Electrical Supply : 400 - 3 - 50 Length - 2480 mm Width - 930 mm Height - 1830 mm Transport Weight - 730 Kg Sound power level is 77 dB(A) in Low Noise Acoustic Setting (ISO 3744) Sound pressure at 10 metre is 45 dB(A) in Low Noise Acoustic Setting (ISO 3744)				
801360	Remote Support Hardware for 1 x S-ASX Unit	1.00	633.00	0.00%	633.00
	The S-ASX-NT 60 is a monobloc design air-to-water heat pump comprising of three fans and two scroll compressors. The S-ASX-NT range utilises R290 refrigerant and a stainless-steel brazed heat exchanger to generate LTHW at between 35°C and 72°C. The unit comes with soft start compressor, low noise acoustic set up and a modulating pump within its casing to transfer the system water from the S-ASX heat pump to a thermal store. Technical Data:				

STREBEL HEATING TECHNOLOGY

Unit 10, Invincible Road
Farnborough
Hampshire
GU14 7QU

Company Reg. 01197182
VAT no. 212 7889 50

Quotation Ref 419104

E-mail: info@strebel.co.uk
Website: www.strebel.co.uk
Telephone 01276 685 422
Fax 01276 685 405

PB Design & Consultancy Ltd
Woodside Cottage
Wood Lane
Renhold
Bedford
MK41 0LT

VAT no.

Page 2
Customer no. 33074
Currency GBP
Date of quotation 27/08/2024

Price valid 30 days from the date of quotation

Prices are Exclusive of VAT

Our ref. Jonathan Hunter
Your ref. Peter Murphy

Project
16089 - Ware Lido (Male/Female/Family Showers)

Product no.	*Product description*	*Qty.*	*Unit price*	*Discount*	*Total*
	Output at A7/W35 is 55.1 KW SCOP at 35°C is 4.05 (EN 14511) Electrical Supply : 400 - 3 - 50 Length - 2480 mm Width - 930 mm Height - 1830 mm Transport Weight - 708 Kg Sound power level is 77 dB(A) in Low Noise Acoustic Setting (ISO 3744) Sound pressure at 10 metre is 45 dB(A) in Low Noise Acoustic Setting (ISO 3744) .				
104149	Strebel TSE 800/3 Thermal Store	1.00	1,800.00	0.00%	1,800.00

The Strebel TSE/3 carbon steel thermal stores are suitable for closed heating or cooling circuits for installations that require correct energy management, especially for systems that use renewable energy sources such as:
- Biomass.
- Heat Pumps.
- Solar Energy.

The TSE/3 thermal store is designed to provide an extraordinary storage capacity that translates directly into high savings. The over dimensioned, rigid, mould-injected PU thermal insulation maintains the storage temperature over lengthy periods of time without requiring any additional energy input. This means less start-ups and adjustments of external energy sources, with less energy consumption and a more economical cost.

In addition, the TSE/3 thermal stores come with 3 x 2" immersion heater connections to allow immersion heaters to be connected so that there is back up heating in cases where the external energy source fails. Immersion heater options are available at an additional cost.

Technical Specifications of the TSE 800/3 Thermal Store:

Tank Capacity: 800 Litres.
Height: 1840 mm.
Diameter inclding insulation: 950 mm.
Empty Weight: 120 kg.
PU Thermal Insulation Thickness: 80mm - This can be removed to allow the thermal store to fit through an 800mm door frame.

STREBEL HEATING TECHNOLOGY

Unit 10, Invincible Road
Farnborough
Hampshire
GU14 7QU

Company Reg. 01197182
VAT no. 212 7889 50

Quotation Ref 419104

E-mail: info@strebel.co.uk
Website: www.strebel.co.uk
Telephone 01276 685 422
Fax 01276 685 405

Page 3
Customer no. 33074
Currency GBP
Date of quotation 27/08/2024

Price valid 30 days from the date of quotation

Prices are Exclusive of VAT

PB Design & Consultancy Ltd
Woodside Cottage
Wood Lane
Renhold
Bedford
MK41 0LT

VAT no.

Our ref. Jonathan Hunter
Your ref. Peter Murphy

Project
16089 - Ware Lido (Male/Female/Family Showers)

Product no.	*Product description*	*Qty.*	*Unit price*	*Discount*	*Total*
	Number of Side Connections: 6 Side Connection Sizes: 3" Female Top AAV Connection Size: 1" Male Immersion Heater Connections: 3 Connection Sizes: 2" F We can offer a 9kW or 12kW immersion heaters for the TSE 800/3 at an additional cost, therefore a total of 36kW maximum.				
104235	Thermometer Kit 0-120°C	1.00	29.00	0.00%	29.00
104236	Pressure Gauge Kit 0-16 Bar	1.00	48.00	0.00%	48.00
	.				
801291	Strebel S-LC-I 800 SS Calorifier c/w Immersion Heater The Strebel S-LC-I 800 is a stainless steel AISI 316 indirect cylinder which has a high performance coil with a large heat exchange surface area for production of DHW by means of low temperature energy sources such as heat pumps or solar collectors with low solar radiation. This cylinder is thermally insulated by direct mould injection with CFC and HCFC-free PU material of 80mm thickness. Also comes equipped with a 12kW 3PH immersion heater supplied loose. S-LC-I 800 Specification: - DHW Capacity = 800 Litres - Overall Diameter = 950 mm - Overall Height = 1840 mm - Diagonal Dimension = 2071 mm - Empty Weight = 221 Kg - Maximum Working Pressure (Primary Coil) = 25 bar. - Maximum Working Pressure (DHW) = 8 bar. DHW Connection Sizes: - Cold Water Inlet = 1 ¼" M - DHW Outlet = 1 ½" M - Secondary Recirculation = 1 ½" M - Primary Coil Connections = 1 ¼" M - Immersion Heater Connection = 2" F Based on a primary flow temperature of 55c; Cold Water Temperature of 10c; Hot Water Outlet Temperature of 45c:	1.00	6,639.00	0.00%	6,639.00

STREBEL HEATING TECHNOLOGY

Unit 10, Invincible Road
Farnborough
Hampshire
GU14 7QU

Company Reg. 01197182
VAT no. 212 7889 50

Quotation Ref 419104

E-mail: info@strebel.co.uk
Website: www.strebel.co.uk
Telephone 01276 685 422
Fax 01276 685 405

PB Design & Consultancy Ltd
Woodside Cottage
Wood Lane
Renhold
Bedford
MK41 0LT

VAT no.

Page	4
Customer no.	33074
Currency	GBP
Date of quotation	27/08/2024

Price valid 30 days from the date of quotation

Prices are Exclusive of VAT

Our ref. Jonathan Hunter
Your ref. Peter Murphy

Project
16089 - Ware Lido (Male/Female/Family Showers)

Product no.	*Product description*	*Qty.*	*Unit price*	*Discount*	*Total*
	- Maximum Power Absorption = 78kW - Primary Flow Rate = 8 m3/h - Continuous Flow Rate at 45c = 1919 l/h Based on a primary flow temperature of 70c; Cold Water Temperature of 10c; Hot Water Outlet Temperature of 60c: - Maximum Power Absorption = 107kW - Primary Flow Rate = 8 m3/h - Continuous Flow Rate at 60c = 1844 l/h N.B. If system is to be Mains fed then an Unvented Kit will be required at an additional cost.				
800477	"Unvented Pack 6e.80 - 1 1/4"" Controls & 1 1/2"" T&P"	1.00	852.00	0.00%	852.00
	.				
196	Dedicated Delivery on Hiab - Delivery up to 5pm	1.00	1,628.00	0.00%	1,628.00
900363	STREBEL Commissioning S-ASX ASHP - One Unit	1.00	892.50	0.00%	892.50
			Total		**60,286.50**
	. ACOUSTIC ENCLOSURE - PRE FITTED TO ASHP .				
104652	S-ACE15/3 Acoustic Housing 11-15dBA Reduction (3 Fan Model) The S-ACE15 enclosure range offers reductions in noise emissions between 11dB(A) to 15dB(A) and are designed to be used specifically with our S-ASX air source heat pumps with a vertical air discharge arrangement. Each S-ACE15 unit comprises air intake acoustic louvres, a fan discharge attenuator pod, specifically engineered acoustic walls and panels as well as an anti-vibration base with built-in drainage system. The overall acoustic performance of the S-ACE15: - Octave Band Centre Frequency 63 Hz : Insertion Loss 8 dB - Octave Band Centre Frequency 125 Hz : Insertion Loss 11 dB - Octave Band Centre Frequency 250 Hz : Insertion Loss 16 dB - Octave Band Centre Frequency 500 Hz : Insertion Loss 23 dB - Octave Band Centre Frequency 1 KHz : Insertion Loss 26 dB - Octave Band Centre Frequency 2 KHz : Insertion Loss 28 dB - Octave Band Centre Frequency 4 KHz : Insertion Loss 30 dB - Octave Band Centre Frequency 8 KHz : Insertion Loss 28 dB The Dimensions and Weight for the S-ACE 15/3:	1.00	21,995.00	0.00%	21,995.00

STREBEL HEATING TECHNOLOGY

Unit 10, Invincible Road
Farnborough
Hampshire
GU14 7QU

Company Reg. 01197182
VAT no. 212 7889 50

Quotation Ref 419104

E-mail: info@strebel.co.uk
Website: www.strebel.co.uk
Telephone 01276 685 422
Fax 01276 685 405

Customer no. 33074
Currency GBP
Date of quotation 27/08/2024

Price valid 30 days from the date of quotation

Prices are Exclusive of VAT

PB Design & Consultancy Ltd
Woodside Cottage
Wood Lane
Renhold
Bedford
MK41 0LT

VAT no.

Our ref. Jonathan Hunter
Your ref. Peter Murphy

Project
16089 - Ware Lido (Male/Female/Family Showers)

Product no.	*Product description*	*Qty.*	*Unit price*	*Discount*	*Total*

- Width = 3150mm
- Depth = 1565mm
- Height = 2985mm
- Approximate Weight (Excluding ASHP) = 1480kg

The minimum required clearance around the enclosure is:

- Left Hand End Side = 500mm
- Right Hand End Side = 500mm
- Rear Long Side (Finned Coil) = 500mm
- Front Long Side (Electrical Panel) = 800mm From Solid Wall/Fence or 500mm From Another ASHP

The S-ACE modular units are offered, as standard, prefabricated around the S-ASX heat pump units which then can be delivered, by HIAB, to site.

Alternatively, the S-ACE can be assembled with our team of skilled fabricators if required, at additional cost.

Total **21,995.00**

Quotation Ref 419104

Unit 10, Invincible Road
Farnborough
Hampshire
GU14 7QU
VAT no. 212 7889 50

PB Design & Consultancy Ltd

Woodside Cottage
Wood Lane
Renhold
Bedford
MK41 0LT

VAT no.

Page 6
Customer no. 33074
Currency GBP
Date of quotation 27/08/2024

Price valid 30 days from the date of quotation

Prices are Exclusive of VAT

Project
16089 - Ware Lido (Male/Female/Family Showers)

Product no.	*Product description*	*Qty.*	*Unit price*	*Discount*	*Total*

Any Queries on this Quotation please contact our Area Manager
Mr Jonathan Hunter on 07767 625106
jonathan.hunter@strebel.co.uk

Please also Read the VERY IMPORTANT information which is contained within the Strebel Ltd Terms of Business document CD1: V6 01/2020 which is sent along with this quotation. If you do not have a copy of our Terms of Business please contact the Strebel Ltd office and a copy will be sent to you. Alternatively our Terms of Business are available to download from our website at www.strebel.co.uk

Conditions of Sale: We respectfully request that any orders placed with us clearly specify that Strebel Conditions prevail.

53 Heat Pump Quotation

Bristol

Old Gloucester Road
Bristol
BS16 1FX
TEL 01454 202 050
Fax 01454 202 900

Pages:	7	**From:**	Scott Evemy
To:	Peter Murphy	**Mobile:**	+447968108286
Company:	PB Design	**Email:**	Scott.Evemy@meuk.mee.com
	Brickhill	**Prepared by:**	Jason Shek
	MK41 7EG	**Phone:**	
	Bedford.	**Email:**	Jason.Shek@meuk.mee.com
Date:	04/10/2024 08:34		

Project ref:	**PRO-92804 | Ware Lido** **Ware Lido**
Proposal no:	**QUO-0004-552389/1 / 1**
	Please quote this proposal number on all correspondence relating to this proposal
Validity:	30 days from the above date

Dear Peter**,**

Thank you for your valued enquiry in respect of the above project. I have pleasure in submitting our proposal as detailed herein. The proposal is subject to the additional proposal information detailed within. I trust the enclosed meets with your current requirements and would like to take this opportunity to draw your attention to a few of the benefits of dealing with Mitsubishi Electric Direct.

Commissioning by Mitsubishi Electric: The Technical Services Department of Mitsubishi Electric provides a comprehensive, underwritten commissioning service at competitive rates. This service will give you peace of mind and will hold us fully accountable for this essential element of the installation process.

Training: All of our air conditioning training courses are CPD approved. We have training facilities in Hatfield, Birmingham, Manchester, Bristol, Reigate and our factory in Livingston, Scotland.

e-Shop: Online ordering is available to all credit account customers across all Mitsubishi Electric product lines. For more information on the finished goods and spares available, please visit: https://les.mitsubishielectric.co.uk/installers/e-shop

Please do not hesitate to contact me at the above office should you wish to amend any details or require any further information.

Assuring you of our best attention at all times.

Regards,
Scott Evemy

REMINDERS

- This quotation is given by Mitsubishi Electric in good faith based upon information provided by you or your company.
- We have not undertaken a site survey to support this quotation. Whilst we endeavour to factor into our quotation any special site conditions or user requirements which you may have expressly identified to us previously in writing, this quotation is not a project system design and is not a confirmation of project volumetric or yield analysis. We recommend that you assess final product selection and make the final system design based upon your own volumetric or yield analysis and project knowledge, including any project requirements which might impact on that selection.
- Please check carefully any requirement for a Mitsubishi Electric product to integrate with any third party equipment. We are not responsible for integration capability of our products with any third party equipment unless we have expressly confirmed that this integration is approved in the current Mitsubishi Electric product specification or in a current technical bulletin.
- If this quote contains Heating Products. Purchasing and installing customers must pass the relevant Heating Training Course before an order can be placed. Call on 0161 866 6089 to book.
- All quotations containing CAHV, Wizard AHU, QAHV, e-Series, s-MEXT, CRHV and/or Cascade Systems must be accompanied by a Mitsubishi Electric technical proposal. Please contact your Account Manager if you have not received one.

Qty	Model	Description	Unit Price	Net Price
It is the contractor's responsibility to check this quotation is in line with the latest edition of project particular specification tender documents before ordering.				
Diversity 88%				
1	PUMY-P200YKM3 (613793-UK)	PUMY-P200YKM3 Outdoor Unit R410A	£4,806.00	**£4,806.00**
3	CMY-Y62G-E Branch Joint PUMY-P (165132)	CMY-Y62G-E Branch Joint PUMY-P	£72.00	**£216.00**
Community Studio				
2	PLFY-M63VEM6-E.TH (622830-UK)	6.4kW R410A/R32 VRF CassetteIndoor Unit	£1,026.00	**£2,052.00**
Treatment 1&2				
2	PLFY-P25VFM-E1R1.TH (601846-UK)	600x600 4-Way Blow Ceiling Cassette	£796.00	**£1,592.00**
2	PLP-6EAR1 WHITE GRILLE (303659-UK)	PLP-6EAR1 WHITE GRILLE	£205.00	**£410.00**
2	SLP-2FA (289069)	SLP-2FA GRILLE	£112.00	**£224.00**
1	PAR-41MAA (606129-UK)	Standard wired remote controller	£103.00	**£103.00**
			Subtotal:	**£9,403.00**
		TOTAL NET PRICE EXCLUDING VAT		**£9,403.00**