

Air Source Heat Pump Installations

PLEASE REFER TO ITEM 1.0 HANDOVER CERTIFICATION FOR SPECIFIC CERTIFICATION/ HANDOVER REQUIREMENTS IN RELATION TO THIS SPECIFICATION.

Construction (Design and Management) Regulations 2015

In line with requirements of the above Regulations (referred to as “the CDM Regulations”) the key roles will be appointed.

The Client will be the Employer

The Client will appoint the CDM Principal Designer

The Client will appoint the contractor as the Principal Contractor

The contractor is required to have examined the CDM Regulations and Approved Code of Practice in order to anticipate, as far as reasonably practicable, the full implications of this legislation in its capacity as Principal Contractor and shall comply with the “Requirements on Principal Contractor” with the CDM Regulations.

From the “Pre-construction Information” provided, the Contractor shall, following the award of the contract, prepare a comprehensive “Construction Phase Plan” which is to be made available at least 14 days prior to commencement of works and maintained up to date throughout as works progress. Any changes notified without delay.

The Contractor shall provide information to aid the preparation of the Health & Safety File by the Principal Designer in good time and prior the date of completion.

Specification

General Terms:

The contractor is required to be PAS2030 certified and Trustmark registered.

In order to comply with PAS 2035, the installation will be managed by an approved Retrofit Coordinator. The Retrofit Coordinator will be responsible for overseeing the assessment of dwellings as well as the subsequent specification, monitoring, and evaluation of energy efficiency measures, in accordance with PAS 2035.

The activities that Retrofit Coordinators will need to undertake as part of the PAS 2035 process include:

- The completion of a retrofit risk assessment for each dwelling or dwelling type within the retrofit project
- The development of a retrofit project plan

- The documentation of the project progress, including any information that is supplied by building owners, and other retrofit stakeholders involved in the delivery of the project
- Sign off of all works to ensure compliance

All Contractors are expected to fully comply with all Health and Safety legislation. Before the commencement of work the contractor must provide:

A valid Safety Schemes in Procurement (SSIP) certificate e.g. CHAS, Safecontractor, Construction Line.

Employers Liability insurance certificate

Public Liability insurance certificate

Any relevant trade accreditation

Details of any HSE prosecutions in the past 5 years

Safety precautions shall be always observed. All new operatives shall be formally trained in the safe site working and use of all tools used by way of site induction. Contractors shall ensure that their operatives always have the correct equipment including personal protective equipment. Full training and assessment records of all operatives must be kept in an acceptable manner. Important safety precautions include:

The Contractor and all Persons (including sub-Contractors) employed by him on the work shall comply fully with the Health and Safety at Work Act 1974 and all appropriate existing enactment's which are relevant statutory provisions under that Act and with all other relevant safety requirements and with appropriate Codes of Practice and Health and Safety Executive's Good Practice Guidance Notes.

The Contractor will not sub-contract any work without prior authorisation by the Client or Clients representative.

The Contractor shall provide all necessary equipment and safe provision for power to the works. The Contractor will not be allowed to use the existing dwellings and their services, amenities, or the Residents' own property. The Contractor shall not use the Residents electricity for recharging. This shall apply irrespective of any permission and/or arrangements given or made between the Contractor and the Resident at the dwelling.

Prior to the commencement of works, the Contractor, in conjunction with the Client, at the planning and investigation stage of the project, will establish the scope and nature of Asbestos Containing Materials (ACMs) likely to be encountered.

Under no circumstances shall any ACM be removed or disturbed until agreed with the Client.

The project will be subject to compliance with the current Construction Design and Management (CDM) Regulations. The Contractor shall comply with all duties and obligations under this enactment in the role of the Principal Contractor.

The new installations shall comply with current Building Regulations, MCS standards, British Standards, Codes of Practice and must be carried out by an MCS certified installer.

All appliances shall be installed strictly in accordance with the manufacturer's instructions and recommendations including all ancillary works required by these instructions and recommendations.

All work shall be to the reasonable satisfaction of the Contract Supervisor using good trade/ best practices.

All materials are to be new and must comply with the appropriate British Standard where such exists. All proprietary products are to be used and applied strictly in accordance with the manufacturer's instructions.

All materials shall have the manufacturer's label for identification and the Contractor shall include for making available to the Contract Administrator any item requested for inspection and testing purposes.

The Client reserves the right to have the Contractor replace or re-site any part of the installation which, in the opinion of the Client, has been incorrectly supplied or fixed. Any such removal, alteration or re-siting shall be carried out entirely at the Contractor's expense and at no extra cost to the Contract.

Temporary electrical heaters suitably PAT tested must be supplied if there is an interruption to the heating system during installation or if there is a breakdown of the heating system during the warranty period where there is a delay in the repair of the heating system.

Legislation:

The Principal Contractor shall ensure compliance with all statutory requirements.

All design and installation works shall be carried out in accordance with all relevant MCS standards, British Standards specification and Codes of Practice, or equivalent ISO or EN Standard, current at the time of installation.

Scaffolding:

The principal contractor will agree a rate for the provision of a full scaffold system to properties where required to fully comply with health and safety requirements and good working practice, the scaffold must be fitted by a qualified and certified erector of scaffold.

The successful principal contractor must ensure the scaffolding company selected for this project must provide evidence of qualifications and present them to Broadacres before any works commence.

This is also including use of mobile tower scaffold systems, ensuring all parties using the mobile tower scaffold system have the correct qualifications and training and to provide evidence.

Upon the completion of the work at height, the contractor must remove the scaffolding within 3 working days of completion.

General Description of the Scope of Works:

The work involves the removal of night storage heaters, oil fired central heating systems, gas fired heating systems or solid fuel heating systems and the installation of a new central heating system which will comprise a monobloc or split air source heat pump, unvented hot water cylinder and heat emitters to various properties throughout the client's stock.

The Contractor is to include costs for all labour and consumable materials to carry out the work. The air source heat pump, unvented hot water cylinder, heat emitters, clock, controls, cleanser, inhibitor, filling loop and radiator valves are to be provided by the Contractor and all pipe work, fittings, condensate pipe work and associated fittings will be included in the costs.

All appliances are as per specification unless pre - installation site survey indicates unsuitability whereby an alternative system design will be presented to the Client for approval.

Full systems to include for removal and making good of full existing systems, radiators, pipe work header/feed/expansion tanks, electronic controls and cabling, DHW cylinders, valves, pumps, pipe clips, trunking etc. Full systems to include for removal and making good all redundant electrical wiring, accessories, cable containment and distribution boards.

Tenant Liaison Officer to be provided and available at all times during agreed working hours. TLO to assist in identifying vulnerable tenants.

All contractor's workforce are DBS checked prior to commencing any work

TLO

The Contractor is required to ensure that the following areas of Resident liaison are carried out:

- Write to the Residents to inform them of the work which is to be undertaken.
- Initiate, organise and attend any necessary Resident meetings.
- Arrange appointments with the Residents.
- Obtain any tenant specific needs
- Visit with the relevant surveyors and designers and identify potential social or technical problems.
- Assist the Residents to make any necessary decisions and choices.
- Ensure the Resident signs the necessary choice or disclaimer forms.
- Explain the process for the works and advise them on any precautions they will need to take, such as rolling back carpets, moving furniture and creating working space.
- Organise access for the improvement works.

- Communicate with the Resident throughout the works as appropriate to specific needs.
- Ensure that handover and completion procedures operate in a Resident friendly fashion.
- Ensure that the Resident is shown with due consideration how to use the new components fitted within the property and provide the Resident with all relevant user documentation.
- Liaise with the Resident for the rectification of any defects; aim for zero defects and provide the Resident with a timescale for rectification.
- Initiate and manage any complaints procedure.
- Provide regular feedback on progress, Resident satisfaction and procedures to the clients project team.

All works and necessary temporary works to be programmed so that each Resident has the following facilities at all times:

- WC and washing facilities (including hot and cold water) at the end of the working day.
- Loss of electricity not exceeding two hours.
- Fridge / freezer content power.
- Cooking facilities to be provided at the end of the working day.
- Loss of washing machine not longer than 24 hours.
- Heating facilities must be maintained.

Contractor to include for surveyor and TLO within prelim costs. The bid price will be deemed to include for the full cost of the works, including all hours of work, overtime and non-productive time required for the full completion of the works in accordance with the programme.

The Contractor shall inform the tenants in writing, at least one week in advance, of his intended date to commence work on their dwelling. It is the Contractor's sole responsibility to arrange with the tenant for access to the dwelling and shall be liable to meet all claims arising from his failure to give adequate notice to the tenant of any deviation from the intended installation dates.

The Contractor, any workers, or sub-Contractors must not make any comment or pass opinions relating to housing maintenance decision or any Client Policy or any other contractors work. Any queries relating to communications of these natures should be referred to the Project Manager.

Accreditation & Qualification:

All Contractors must be accredited with the Microgeneration Certification Scheme as an MCS certified installer.

Contractors must be members of the NICEIC roll of Approved Contractors/ ECA or any other governing body and must be registered as a domestic installer to comply with approved document part P.

Contractors must hold a current SSIP accreditation.

Operatives must hold a recognised F gas qualification when working on split units

Specification:

It is mandatory that all dead legs are removed on any pipe work that is altered or was associated to a redundant appliance, tank or cylinder

The contractor is to undertake their own technical survey which must be issued to the client for technical approval prior to installation.

The Contractor is to include for isolation of all services including gas, water and electric, carefully draining down, disconnecting, removing and disposing of existing heating system including radiators, all pipe work, boilers, fire surround, hearth, back boilers, electric storage heaters, cylinders, oil tanks, oil feed pipes and any feed and expansion tanks including those in loft spaces etc. All existing CH flow and CH return pipe work to be removed and replaced.

Carpets, Furniture, Tenant Effects, fixtures, and fittings etc. The Contractor is to provide clean waterproof dust sheets to cover all furniture and carpets throughout the dwelling and will be wholly responsible for cleaning any soiling caused by him to carpets, furniture, curtains, etc. The Contractor shall include here for moving furniture and rolling back carpets and replacing upon completion. Any damage resulting from the works will be deemed to be the responsibility of the Contractor who shall repair or replace the damaged property or contents at his own expense to the entire satisfaction of the Contract Administrator. Protective floor coverings of all types are to be removed at the end of each day's work.

The Contractor shall include for the removal and subsequent re-fixing of any fixtures and fittings necessary to carry out the works.

ASHP and Cylinder:

All design and installation works shall be carried out in accordance with all relevant MCS standards, British Standards specification and Codes of Practice, or equivalent ISO or EN Standard, current at the time of installation. Materials fitted must be as per Client specification. ASHP/cylinder locations to be agreed with the Contract Supervisor. ASHP's must be installed on a gravel soakaway, having 150mm showing around the footprint of the unit, with a pin-kerb surround and one bedded on flag under each foot. Footpath to be extended around heat pump where soakaway pit restricts footpath to less than 600mm.

Controls- The latest manufacturer specified controller and room stats are to be fitted, the FTC should be located next to the cylinder with a separate room stat within the property for customer control. An automatic bypass valve to be fitted if required.

Radiators- The Contractor will install appropriately sized steel panel radiators as per Clients manufacturer specification. Radiators must be sited below windows in habitable rooms unless agreed otherwise with the Contract Supervisor. The radiators shall be positioned to enable the pipe work to clear the floor level by a minimum of 100 mm. If the room is over 4.2 metres long 2 radiators

must be fitted – one at each end of the room. In bedrooms under 4.2 metres long a single radiator must be fitted in a central position.

Installation of radiators back to back on internal walls will not be accepted and must only be installed with approval of the Client's Site Supervisor.

Each radiator shall have a TRV and lock-shield valve, excluding the room where the thermostat is located where two lock shield valves must be installed. A drain off point/cock shall be installed within the return pipe work feeding every ground floor radiator. A key-operated air vent shall be installed on each radiator together with a plug and 2 no. Vent keys per dwelling.

Manufacturer's instructions relating to fixing, number of brackets and screw sizes must be observed.

In a bathroom, supplementary earth bonding shall be provided if required.

Where vertical radiators, hydronic plinth or hydronic wall heaters are required due to lack of wall space, these are to be supplied under the same pricing structure as horizontal radiators and fitting to be charged as a horizontal radiator.

Pipework and fittings - All pipe work to the first floor shall be installed below floorboards. White PVC trunking shall be used for all exposed drops from ceiling to low level on ground floor and horizontally to each individual radiator, suitably sealed/pointed at the junction of the trunking and ceiling and wall using a flexible acrylic/caulk. Joint connectors to be used as required and horizontal pipework to have a manufacturer recommended end cap.

Where radiators are to be fixed under windows, the pipe work drops shall be adjacent to the window reveal and behind the line of the curtain. Where radiators cannot be fixed below windows, the pipe work drops shall be either at the corner of the room or adjacent to door jambs.

Pipe work running horizontally at ground level shall be fixed to the wall throughout the installation using standoff / hinge over clips.

The Contractor will bear the cost of re-siting unreasonably obtrusive pipe work or the cost of boxing in the pipe work at direction of the Contract Supervisor.

All copper tube drops to radiators shall be in 15mm o.d. BS 2871, Table X. The whole of the plumbing and heating installation shall be executed in accordance with the Building Regulations and the by-laws of the Local Water Authority. Filling loops to be disconnected and both ends blanked off following commissioning. End feed fittings shall be to current BS at time of install, lead free Solder to be used.

Compression fittings shall be fitted to easily disconnect any appliance in need of maintenance. Supply drain cocks in accessible positions so that the whole of the system can be drained.

Pipe work passing through walls shall be provided with plastic sleeves and wall surfaces shall be finished in a neat and tidy manner with voids foam filled.

Pipe work runs below floorboards shall be as close as practical to walls and the joists shall be notched with minimum damage in accordance with building regulations. Allow for seating pipes on a thin layer of foam or felt insulation. Pipe work shall be a minimum distance of 230 mm from cable

runs. The Contractor shall ensure that all pipe work including existing Domestic Supplies is bonded to Current Edition of the IEE Regulations, including amendments.

Pair of in-line valves to be installed close to cylinder to primary flow and return in-line with MCS requirements unless on-board metering meets MCS requirements. Through the wall kit to be installed on primary flow and return where they penetrate the wall.

Under no circumstances is the soffit / fascia to be penetrated as there could be asbestos containing materials hidden behind the UPVC cover.

All pipe runs fitted externally to the property must approved by the Contract Supervisor. The Contractor will bear the cost of re-siting unapproved pipe work.

Soakaways - The unit will be mounted on flexi foot anti-vibration feet specifically designed for ASHP's and will be fixed to a concrete flag under each foot (concreted into the ground). It will be surrounded with 150mm wide, 100mm deep 20mm gravel (soakaway) retained by pin kerbs. Where a soakaway is installed in place of an existing path the Contractor must include for the diversion of the path around the soakaway with previous existing matching material. New flags to be a minimum of 600mm wide.

When using split units, the contractor is to allow for the necessary excavation and reinstatement of the ground back to the existing condition to allow the pipework to be buried.

Cables & Circuits-The Contractor must include for the cost of all electrical wiring to the new installation including upgrading of earth bonding where necessary and provision of all necessary certification.

All cables to be of PVC sheathed copper cable to current BS standards.

The switching of the ASHP shall be via an IP rated rotary isolator capable of accepting a padlock for the purpose of mechanical maintenance. The switching of the controls shall be via a double pole switched fused outlet unit having a removable fuse carried capable of accepting a padlock for the purpose of mechanical maintenance. The switching of any associated elements shall be via a double pole switched fused outlet unit having a removable fuse carried capable of accepting a padlock for the purpose of mechanical maintenance.

A new separate electrical supply must be run back to the consumer unit or a fused outlet spurred directly off the ring main circuit. No junction boxes to be fitted in inaccessible positions e.g. under floorboards.

All cabling from the fused spur outlet to the new installation is to be renewed in entirety.

All control wiring to be carried out in accordance with manufacturer's instructions.

All wiring shall be housed in PVC conduit flush-finished throughout or mini trunking. All wiring shall conform with the current Edition of the IEE Regulations including all amendments.

The Contractor must include for the cost of removing and making good all redundant electrical wiring, accessories, cable containment and distribution boards.

Builders' Work - The Contractor shall include in his bid for all builders' work relating to plumbing and heating installation including lifting, replacing or renewing floorboards, notching woodwork forming, cutting all holes and chases, and making good disturbed structures and finishes. Where timber or timber floors are disturbed, the boards are re-secured using wood screws.

Removal of existing fireplace including surrounds, hearths, grates, firebacks and filling and all making good of the structure disturbed shall be carried out at the same time as the new installation, this includes skim finish to blockwork and self-levelling or sand-cement mortar to hearth area.

All fireplaces to be removed regardless of whether they are a primary or secondary heating source.

The Contractor must include for removal of all existing night storage heaters, oil fired boilers, gas fired boilers and solid fuel boilers including associated pipework, cabling and trunking. SF back boilers must be removed from fireplaces.

All redundant hot water cylinders, CWS storage tanks, header tanks etc and their associated pipe work must be removed and disposed of. No dead legs are to be left.

Any external brick work repairs must be done using matched bricks which are toothed back into bonded course and pointed with colour matched mortar finish.

Any combustion vents not required following the removal of the fire/bbu must be removed and bricked up / plastered to an appropriate standard to allow decoration.

Joinery - Where the proposed cylinder location requires joinery work to extend the door frame outwards, requires enlargement or a cupboard to be built, this work is to be identified during the survey and is to be completed during the install. Any exposed pipework such as where the primary flow and return penetrate the property and D2 pipework is to be boxed in during the install. Skirting is to be fitted to chimney breast where fire has been blocked up or electric fire removed, this is to match the rest of the room.

Making Good - The Contractor will make good any structural elements damaged when existing system is removed including concrete floors, brickwork walls, roofs, timber, etc. It is not the Contractor's responsibility to lift or replace laminate flooring or any similar design. This must be lifted and replaced by the resident or pipe work will need to be routed differently. Also to include for any making good of wall, floor and ceiling finishes such as wall tiles, plaster, floorboards etc. General making good of paintwork and decoration is NOT be included.

However, if the decorations to the wall and ceilings of the room are damaged due to the Contractor's neglect, the Contractor shall make good the entire wall or ceiling and decorate these areas to the satisfaction of the Contract Administrator

Where redundant back boilers are removed this will include all associated pipe work and fittings. On removal of the back boiler and removal of fireplaces whether they are primary or secondary heat sources, the existing fireplace, hearth and surround shall be removed, and the opening sealed with brick/block, plaster finish and skirting to match existing. The flue shall be vented by the building-in of

a bridging duct, approx. 220 mm x 220 mm x 100 mm long together with a louvered ventilator and fly screen approx. 271 mm x 247 mm. Rope seals to be removed by a licenced asbestos contractor. Fit flue vent flue terminal (Mushroom cowl) to redundant chimneys. Include for access to flue termination. The clients Contract Supervisor to be notified of any unsafe chimneys. No terminal will be required if there is an existing GC1.

Disturbed loft insulation must be reinstated. Where the depth does not meet 300mm this must be increased by the contractor prior to undertaking the post EPC. The contractor is to ensure the insulation is tucked into the eaves and that the back of the loft hatch is insulated.

Additional work:

Where site conditions dictate additional work or variations from the tendered rates the Contractor must submit a written estimate for the cost of these additional items which will be assessed against the bided rates and the overall cost of the job. No additional work shall be undertaken by the Contractor without authorisation from the clients Contract Supervisor.

Testing and Commissioning:

The system is to be flushed with an approved cleaning solution in accordance with the heat pump manufacturer's instructions and guidance from Sentinel. This task must be documented on the appliances benchmark certificate and a Sentinel System Check completed. Sentinel X300 cleaner to be used and circulated hot for at least 1 hour,

Sentinel R600 to be used as glycol/inhibitor and must be dosed to achieve -15 degrees protection or the use of anti-freeze valves will be permitted provided inhibitor and biocide is added. These should be fitted in line with the manufacturer's instructions.

Strainer within heat pump to be cleaned once flushing has been completed, strainer within the magnetic filter to be cleaned once flushing has been completed. It may be necessary to clean these strainers during flushing in addition to on completion of the flushing process.

Temperature probe length to be checked on each install and extended if necessary, during commissioning.

The Contractor is to carry out a hydraulic pressure test on the heating installation and the hot and cold-water service installation to 1.5 TIMES THE DESIGN PRESSURE. The pressure is to be maintained for three hours during which time all joints are to remain sound and watertight.

Hot Tests-Adjust and set all mountings and controls on the heating and hot water systems, calibrate all instruments and set to optimum adjustment.

The installation and appliance shall be commissioned in accordance with manufacturer's instructions.

Upon completion of the tests, the Contractor shall take all action necessary to correct deficiencies or malfunctions which are highlighted. A suitable corrosion inhibitor must be introduced into the heating system. This task must be documented on the appliances benchmark certificate.

Copies of all test certificates, together with written evidence of any remedial measures taken are to be forwarded to the clients Contract Supervisor upon completion.

Completion:

On completion of the works, the Contractor shall clear away all superfluous material, rubbish and plant etc and leave everything clean and in order, to the satisfaction of the Contract Supervisor. Dust sheets and any other protective floor coverings must be removed when work ceases each day. During works, both new and waste material placed/stored outside the property must be placed upon and contained within the confines of a tarpaulin sheet located in a place in which a trip hazard will not be presented i.e.* off the walkway / footpath, on the front lawn. All waste material must be removed from site at the end of each working day. Waste must be disposed of in line with waste management legislation. Hazardous and non-hazardous waste must be segregated and disposed of separately; the waste hierarchy must be adhered to, and Waste Transfer/Consignment Notes must be retained in line with legislation.

Handover - The Contractor must provide the client with a formal hand over pack for each property in accordance with MCS standards with the UPRN assigned. Benchmark to remain at the property. On commissioning, Benchmark to be photographed showing install date, photograph to be immediately emailed from site to Project Manager enabling property components to be updated.

Hand over packs must be issued to the client within 14 days of site completion.

No payments will be made without receipt of the following documents:

Heat Loss calculations for each heated room, internal and external design temperature(s) and the duty of the heat emitters at design conditions in each heated room (whether existing or installed under this contract)

Design maximum heat emitter flow temperature

Details of maintenance requirements

ASHP hazard survey form

ASHP Survey

ASHP Pre-install pictures

Electrical Installation Certificate

Part P Certificate

Building Regulations Certificate of Compliance

Commissioning Checklist

ASHP Noise Level Calculation

MCS Certificate

ASHP Warranty

ASHP Handover document

DNO Application

ASHP Installation Manual

ASHP Maintenance Checklist

Load Check Calculation

ASHP Method Statement

ASHP RAMS

Mid Installation Pictures

Post Installation Pictures

ASHP Equipment Registration Sheet

ASHP User Guide / Manuals

Installer / Designer Qualifications

ASHP Workmanship Warranty

Manufacturers installation and operating manuals for all major items of plant including heat pump, central heating controls and hot water cylinder (calorifier) including all commissioning control values

MCS Heat Pump System Performance Estimate used for final contract (i.e. including any variations/changes to design)

The heat pump output power (kW) at the design ambient and design maximum flow temperature leaving the heat pump

Copy of the Heat Pump Compliance Certificate

Confirmation of means by which the customer will receive Building Regulations compliance certification where required

Relevant NICEIC certificates

Sentinel system check certificate

End of job report

Post installation EPC certificate including the provision the data in XML format.

Demonstration of New System to Customers:

The Contractor is to include for demonstrating the method of economic and efficient operation of the systems during summer and winter months.

The Contractor shall devise a form, approved by the clients Contract Supervisor and obtain tenant's signature to confirm that they have received instructions, been given a demonstration and understand

how to operate the system. A copy of this form shall be forwarded to the clients Contract Supervisor upon completion with the handover pack.

A defect tracker is to be issued to the project manager weekly, this should evidence handovers and rectification of snags and defects.

One install to be completed each week with an option to increase to two installs if necessary – only permissible if an extra team is taken on.

Blow off pipework is to receive trunking in addition to radiator flow and returns

Additional Scope:

All contract management, prelims, welfare, supervision, labour & plant required for the installation is to be included.

Survey, design, drawings, schematics, calculations, paperwork etc in accordance with MCS requirements.

DNO notification and fuse upgrade prior to install (cost of which to be claimed back on final invoice)

Application for planning or building control permission.

Complete tech survey and full MSC design, calculations etc and provide for review.

Supply, delivery, offload and storage of all equipment.

Removal & disposal of existing heating system and making good all areas disturbed throughout.

Removal of existing hot water cylinder and tanks and make good.

Blanking plates to existing electrical heater spurs / remove if surface mounted. Disconnect existing electrical heating circuit from consumer unit and blank off. Remove redundant wiring and distribution board from storage heaters.

Remove redundant wiring from back boiler pumps

Remove redundant wiring from previous heating system including room stats / controllers / spurs

Move and put back furniture or obstructions to facilitate installation throughout.

Heat pump to be located within 1m of external wall and floor mounted on suitable base. Include all mountings and supports required.

Provision of soakaway and associated pipework for heat pump condensate.

Provide all wiring, pipework, insulation and associated equipment from the external HP into the property.

Provide adequate means of expansion for the system size.

Extension and alteration of existing domestic supplies including insulation to suit the new installation.

Provide all electrical wiring, plumbing and support base for unvented cylinder & immersion heater.

Provide relay and associated wiring to provide full legionella control in line with manufacturer's instructions.

RCD protected heat pump circuit from the consumer unit to heat pump isolation. Provide NICEIC test cert.

Provide hard wired time & temp controls, controls wiring from new heating circuit including supplementary bonding.

Supply & install radiators, valves, pipework, fittings, bracketry, insulation etc for new heating system.

All core drilling holes & making good.

Trunking to vertical drops, horizontal pipework fixed to wall using standoff clips.

Provide filling loop & auto bypass valve as required for the system.

Provide chemical flush, inhibitor and magnetic filter to the heating system.

Flush, fill, vent, balance, test & commission.

Provide full customer instruction and handover pack.

Provide warranty for 2 years.

All responsibilities set out in the responsibility matrix.

Fixed price for the first and second year of the contract period, option to review pricing for year three in line with inflation

Provide call out and response to agreed SLA's during defect and warranty period.

Insurance Backed Guarantee to be provided

Out of scope:

Painting or decorating

Structural repairs to building fabric (defects to be identified at survey)

Lifting or relaying laminate flooring

Applicable Components

Item	Manufacturer / Supplier	Range/ Model Number	Colour
ASHP (Monobloc)	Mitsubishi	Ecodan	Manufacturer Specified
ASHP (Monobloc) Room Stat	Mitsubishi	Simple Room Controller	White

ASHP (Monobloc) Cylinder	Mitsubishi	Pre-plumbed cylinder	Manufacturer Specified
ASHP (Monobloc) Cover	Pumphouse	Easy fit	N/A
ASHP (Split)	Daikin	Altherma	Manufacturer Specified
ASHP (Split) Room Stat	Daikin	Madoka	Manufacturer Specified
ASHP (Split) Cylinder	Daikin	Pre-plumbed cylinder	Manufacturer Specified
ASHP (Split) Cover	Daikin	Acoustic Cover - EKL08A1	N/A
ASHP Mounting	Pumphouse	Flexi Foot with Strut	Black
External pipe lagging	Pumphouse	PVC Coated 19mm wall insulation thickness with Armaflex pipe insulation lagging tape to the joints	Black
External Flow and Return through wall kit	Pumphouse	Through Wall Insulation Kit	Black
External Pipework Protection Capping	Inaba Denko	Slimduct SD	Black or White (If against Render Only)
Radiators	Myson	Select Compact	White
Vertical Radiator (If applicable)	Myson	Vertical	White
Valves	Myson	Slimline Decorative	Chrome
Thermostatic Valves	Danfoss	RAS-C ²	White
Hydronic Heater	Smiths	Ecovector	White
Pipework Boxing	Talon	Mini Trunking	White
Boxing	Pendock	MX- Pipeboxing – 8mm	White

Additional Items to provide costings for:

Type B RCBO / Type B RCD & MCB to be installed where ASHP manufacturer recommends, ideally as a separate garage board

Shower Mixers to be installed where DNO requires a reduction in load to enable ASHP install, surface mounted chrome pipework to be installed. Electric shower to be removed, electrical connection isolated, cold feed isolated and tiling made good during ASHP installation. Manufacturer to be Ideal Standard

Bath Mixers to be installed where DNO requires a reduction in load to enable ASHP install, and pipework cannot be easily installed such as ground floor flats. Electric shower to be removed, electrical connection isolated, cold feed isolated and tiling made good during ASHP installation. Manufacturer to be Ideal Standard

Fireplaces, hearths & plaster skim – to be completed to the level where the customer can paint the chimney breast and have a carpet fitted

Cupboards, pipe boxing and skirting to chimney breast where fireplace has been blocked or electric fire has been removed.

Painting – make good all areas affected by install such as: radiator locations including where radiators have been relocated, pipe boxing, cylinder cupboards and cylinder cupboard extensions where a customer is unable to paint using a Dec Pack.

Light switch and sockets to move where a socket is in the way of new cylinder cupboard or cylinder cupboard extension, holes from redundant equipment to be made good.

Coal bunker removal where solid fuel fire has been blocked up

External quality door on cylinder cupboards where cylinder will be located in external store providing it is within the heated envelope of the property at the discretion of the Contract Supervisor.

Gas supply decommissioning, gas meter, gas boiler and associated pipework removal on properties where the gas supply is to be disconnected and an ASHP installed. Flues to be removed during gas boiler removal, vertical flues to be removed up to roof line, client to arrange to remove lead slate and terminal, repair felt and replace tile / slate post boiler removal. Location of removed boiler to be made good where required at an additional cost

Log burners to be decommissioned - slab across the register plate, disconnect the flue, remove the flue liner, fit a pepperpot to the chimney and leave the log burner in place as a decorative feature