Mini Tender Section 1.1
External Wall Insulation, Mechanical and Electrical Installation
BOILER ONLY INSTALLATION

ALL ITEMS BELOW SHOULD BE INCLUDED WITHIN TENDER COST OR CONSIDER WITHIN BIDDERS SUBMISSION

SCOPE OF WORKS

This specification is for the replacement of the existing boiler and the installation of new wall mounted condensing gas boiler only in individual dwellings. This includes an upgrade to the heating controls e.g. room thermostat, programmer, and thermostatic radiator valves (TRVs).

PLUMBING AND HEATING SPECIFICATION

Remove existing boiler and any other items associated with the previous boiler system i.e. heating controls and remove from site.

Install new condensing boiler only in the locations agreed on the install survey along with any pipework and other items associated i.e. room thermostat, programmer, thermostatic radiator valves and where applicable replacement radiators and a hydraulic bypass valve.

Only copper pipe (minimum size of 15mm) is to be used on the heating install.

White plastic trunking is to be used to cover all vertical drops on pipework to any new radiator.

Make good all disturbed finishes to an acceptable standard.

All work must be installed to Manufacturers instructions and must comply with current Gas Safety and Electrical Regulations.

SURVEYING AND PROGRAMMING OF WORKS

The contractor shall allow for visiting each property with the Surveyor/Clerk of Works prior to installing the heating. During the visit the proposed locations of the new boiler, airing cupboard and any pipework shall be determined in consultation with the resident.

Acceptable boiler locations are: kitchen, airing cupboards and store rooms (within the property).

Boiler location should preferably be on an external wall to enable a horizontal flue to be used.

The work shall be programmed to ensure that adequate temporary heating and hot water facilities are provided during the work. Where necessary the contractor shall provide adequate temporary electrical heaters. These heaters shall be inspected by a competent person prior to delivery on site and display a notice to indicate that they have been inspected and passed for use in accordance with guidance note HSG107 for portable appliance testing.
The contractor will be expected to complete each installation in the shortest time possible and ensure that sufficient resources are available to complete within the following timescale:

Take out the existing boiler, storage cylinders, tanks, etc. and make good all disturbed finishes.

Install new condensing boiler only, any pipework and other items associated as instructed. Only copper pipework (minimum size of 15mm) is to be installed within the new boiler system within 2 days.

The total time from commencement to completion shall not normally exceed 3 consecutive working days.

FURNITURE AND CARPET

The contractor shall allow for the removing of all furniture, carpets, curtains etc. and replacing at the end of each working day.

CONTROL OF DUST AND DEBRIS

Particular attention is to be paid to the control of dust and debris during the course of the works. The contractor will be expected to have a suitable industrial vacuum cleaner at hand at all times. All dust producing cutting equipment must be fitted with efficient dust extraction equipment. All properties shall be thoroughly cleared of all dust and debris as and when it arises. All areas likely to subject to dust and debris must be cleared of all furniture, carpets, curtains etc. or shall be completely protected against the ingress of dust etc.

LAMINATED STRIP FLOORING

Where a property is fitted with laminated strip flooring, the contractor shall inspect the floor prior to commencement and record any defects in writing. These defects shall be brought to the attention of the resident and the Project Surveyor/Clerk of Works. The contractor shall provide additional protection over and above dust sheets where there is a likelihood of tools or heavy items being dropped or moved across laminated floor finishes.

MAKING GOOD DECORATION

The extent of decoration to each property shall be agreed between the Surveyor/Clerk of Works and the Contractor on site but shall generally be restricted to making good and preparing ready for residents to redecorate.

New airing cupboard and flanking walls where applicable and decoration has been disturbed.

All other areas where radiators, pipes or boilers have been moved are to be touched up and made good. New pipe work and radiators are not to be decorated.
The contractor's attention is drawn to the fact that the properties will be occupied during the course of the work.

**Fixtures**

Before commencing work, remove fixtures and fittings, set aside and replace on completion:

**THE INSTALLATION**

Heat source: Wall hung, high efficiency condensing, combination or system boiler

Heat emitters: Panel radiators

Circulation: Sealed system

The boiler installation must be installed in accordance with:

The Gas Safety (Installation and Use) Regulations

British Standards and Codes of Practices

The Local Gas Undertaking

The Local Water Company and By-Laws

The central heating installation must be installed by an installer registered with Gas Safe, the Council for registered gas installers

**Existing Installation**

Take out the existing boiler, flue and associated heating equipment as itemised in the schedule of works.

Dispose of all redundant material off site.

Make good where existing equipment removed, including all holes etc. to match existing.

**Fire and Back Boiler Units Only**

Where a fire and back boiler unit is removed the structural opening is to be bricked up and plastered to match the existing surfaces. A permanent 150x225mm vent shall be installed in the opening and the chimney fitted with a clay pot and pepper pot ventilator.

**Basic Design Temperatures**

Design the system to achieve the following temperatures assuming the stated ventilation rates (air changes per hour) and base external air temperature:

Note. The output of any radiant fires shall be ignored in the calculations.
<table>
<thead>
<tr>
<th>Room(s)</th>
<th>Air temp degC</th>
<th>Ventilation rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living room</td>
<td>21</td>
<td>2*</td>
</tr>
<tr>
<td>Dinning room</td>
<td>21</td>
<td>2*</td>
</tr>
<tr>
<td>Kitchen</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>Hall/Landing</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Bathroom</td>
<td>22</td>
<td>3</td>
</tr>
<tr>
<td>Toilet</td>
<td>18</td>
<td>3</td>
</tr>
</tbody>
</table>

Note Minimum ventilation rate to be 5 A.C./H if the room contains an open flued appliance. Design for base external air temperature off –1 degC.

**System Control**

Provide fully automatic and independent temperature and time control of the system. Ensure that all controls are compatible with each other and with the central heating boiler. Controls are to include:

- Central Heating Programmer
- Thermostatic Radiator Valves
- Room Thermostat
- Hydraulic Bypass Valve (where applicable)

**Installation Generally**

Install and balance the system so that it complies with the water supply byelaws, and is safe, efficient, and free from leaks, excessive noise and vibration.

All installation work to be carried out by qualified operatives.

Electrical work in connection with the installation must be in accordance with BS 7671 (The IEE Wiring Regulations).

Comply with restrictions on the cutting of holes, chases, notches, etc. specified in section P31.

In locations where moisture is present or may occur, use corrosion resistant fittings/fixings and avoid contact between dissimilar metals by use of suitable washers, etc.

All equipment, pipework, components, valves, etc. to be fully accessible for maintenance, repair or replacement.

Installation to be fitted with vents at high points and draining taps at low points to facilitate purging and draining.
Boilers

COMBINATION WALL HUNG FAN FLUE BOILER Worcester Bosch

Manufacturer: Worcester Bosch

To BS 5258: Part 8 and BS 6332: Part 3, installed to BS 5871: Part 1.

Type: Worcester Bosch Greenstar 28i Juniors [check per project]

Casing/Finish: White enameled.

Flue: Horizontal flue kit where possible. Where a horizontal flue kit is not practical or would cause a likely plumbing nuisance a vertical flue kit shall be installed.

Filling Loop: Removable flexible connection with isolation valves and check valve.

Valves Generally

Types approved for the purpose by the local water company and of the appropriate pressure/temperature ratings.

Provide in convenient locations for isolation and regulation of all equipment, heat emitters and subcircuits.

Fit with handwheels where appropriate for isolation by the building user.

Manufacturer and reference: Peglar Ltd, Patt. No. 63

Drain off cocks to be Peglar Ltd, Patt. No. 838 (Glanded Type)

Note Lower quality valves are not to be used under any circumstances and if discovered will be instructed to be replaced at the contractors expense

Lockshield Radiator Valves

Copper alloy to BS 2767.

Manufacturer and reference: Peglar, Terrier.

Finish: Chrome Plated

Fit lockshield valves on the return side.

Thermostatic Radiator Valves

To BS EN 215-1 and capable of providing isolation.

Manufacturer and reference: Peglar, Terrier II.

Radiator in same room as room thermostat to be fitted with 2Nr. lockshield valves. (Thermostatic radiator valve not to be fitted)

Fit thermostatic valves on the flow side.
Copper Pipelines

Tube: To BS 2871:Part 1, Kitemark certified.

Joint fittings: To BS 864:Part 2, Kitemark certified. Capillary fittings to be lead-free.

Supports: White plastic clips.

Do not use formed bends on exposed pipework except for small offsets. Form changes of direction with radius fittings.

Cut pipes square using cutter recommended by the manufacturer. Do not use hacksaws. Remove burrs and clean with wire wool and clean cloth prior to assembling joints.

Minimum size of copper pipe to be used is 15mm.

Use purpose designed adaptors for connecting dissimilar materials: do not improvise.

Protect background and plastics pipes and fittings from heat damage when forming soldered joints. Wipe all joints to remove excess solder and clean off all flux residue, oxidation etc.

Maximum centres of support brackets:

<table>
<thead>
<tr>
<th>Pipe Size mm</th>
<th>Vertical Run M</th>
<th>Horizontal Run M</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>1.5</td>
<td>0.9</td>
</tr>
<tr>
<td>22</td>
<td>1.8</td>
<td>1.0</td>
</tr>
<tr>
<td>28</td>
<td>2.0</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Fixing Pipelines

Runs to be straight and parallel or perpendicular to walls, floors, ceilings, etc. as appropriate. Obtain approval of routes before commencing work.

Run hot pipes above cold where routed together horizontally.

Do not run pipes through electrical enclosures or above switch gear, distribution boards or the like.

Fix at adequate centres with minimum of bends and offsets.

Allow for thermal movement and isolate from structure where necessary to prevent noise or abrasion caused by movement. Pipes passing through walls to be sleeved to allow expansion and provide protection. See item P30

Prevent ingress of dirt during installation.
All vertical pipe drops for radiators are to be covered with appropriate trunking / conduit.

Completed pipelines to be of consistent bore, clean and free from external scratching, toolmarks, distortion, cracks and other defects.

**Insulation to Pipelines**

Neatly fit insulation to all pipelines in roof voids

Material: Preformed flexible closed cell split tube insulation with thermal conductivity not exceeding 0.045 W/mK and thickness equal to the outside diameter of the pipe up to a maximum of 40 mm. I.e. (15 & 22mm pipe 19mm thick).

Fit insulation after completion of testing ensuring continuity over fittings and at supports, leaving no gaps and with the split on blind side of pipeline. Ensure all corners and tees etc are mitred and insulation is fixed with black plastic cable ties at 300mm max. centres. A very high standard is expected of the installation of insulation and scruffy workmanship will not be accepted.

In some circumstances it shall be necessary to locate a boiler in an external store. Where this is necessary the contractor shall be required to fully protect the flow and return pipe work against mechanical damage and freezing. All pipes run externally shall be adequately insulated and boxed in on all sides with plywood.

**Gas Pipework**

All gas pipework shall be installed strictly in accordance with the Gas Safety regulations by a competent operative holding a valid certificate of competence.

**Heating Pipework Not Being Changed**

Heating pipework that is deemed not necessary to be changed must be referred back to the Contract Administrator in all cases.

The Contract Administrator will then refer back to its internal procedure and will instruct the contract once this has been completed.

**Electrical Installation**

Electrical work in connection with the installation must be in accordance with BS 7671 (The IEE Wiring Regulations).

**Commissioning**

Demonstrate the heating system to the tenant and leave a full pack of user's instructions.

Fix label on boiler, with installers name, address, telephone number, date of installation, expiry date of warranty. Complete Benchmark certificate in full and send to the Contract Administrator together with the application for payment. Send the “Notification of Completed Work” to your Certification Body (Scheme Operator) in accordance with part L of the Building Regulations.
Breakdowns, Faults and Warranties

Contractor will be required to include the following service as part of the submission

Provide a comprehensive 12month Warranty on the full installation.

Provide contact details for breakdown and faults

Operate a 24hrs call out service for faults and breakdowns

Attending to a reported fault within 24hours of being notified.

Provide suitable level of temporary heating/hot water following fault/breakdown

Liaise with boiler manufacture on the client behalf to resolve fault/breakdown

Provide client full training/instruction of heating system and controls

MATERIALS SUPPLIED FOR BOILER SYSTEM

ALL WORKS ARE TO BE CARRIED TO THE FOLLOWING STANDARDS:

- MANUFACTORS SPECIFICATION;
- GAS SAFETY REGULATIONS;
- ELECTRICAL REGULATIONS; AND
- BUILDING REGULATIONS.