Comhairle Cathrach
Bhaile Átha Cliath
Dublin City Council

Multi-Party Framework Agreement for Minor Repair and Maintenance works to Occupied Units & Properties owned or managed by Dublin City Council Housing Department

Volume A – Appendix H Works Requirement Domestic Heating System Minor Repairs



Comhairle Cathrach
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SECTION 01
GENERAL REQUIREMENTS SECTION

1.01 Introduction.

This document, Volume A – Appendix H Domestic Heating Service Requirements, outlines the principal requirements for repair and maintenance of domestic heating systems in Dublin City Council Housing stock.

Dublin City Council Housing Maintenance operates a "Domestic Heating System Service & Repair Framework (S&R Framework) which is separate from the *Multi-party Framework Agreement for Repair and Maintenance Works to Occupied Properties*.

In general the majority of works relating to the repair and serving of domestic heating systems will be carried out under the S&R Framework, however on occasion there may be some overlap in the type of works covered by the two frameworks especially where the works involved are minor in nature. In such circumstances contractors on *Multi-party Framework Agreement for Repair and Maintenance Works to Occupied Properties* may occasionally be required to carry out minor repairs to domestic heating systems.

In such circumstances contractors must meet the same standards as set out in the *Domestic Heating System Service and Repair Framework* as outlined in the document below.

Contractors on the *Multi-Party Framework Agreement for Repairs and Maintenance to Occupied Properties'* will not be required to carry out annual servicing of boilers or heating systems.

The standards and rules in the document below were prepared primarily for the operation of the S&R Framework. Any reference in the document below to the 'Framework' or to the 'S&R Framework', the 'contract' or the 'tender' should be understood as referring to the Domestic Heating System Service and Repairs Framework, contract and tender.

The operating rules established specifically for the *S&R Framework* will not apply to contractors allocated minor tasks under the '*Multi-Party Framework Agreement for Repairs and Maintenance to Occupied Properties'* however the same standards of customer service and workmanship and any works methodologies specified below will apply to all works carried out on domestic heating systems under either framework

1.02 Specification and Ancillary Documentation.

The Contractor must read this specification in its entirety, together with all other referenced ancillary documentation, tender information and instructions of the client.
This specification and particulars should be read in its entirety and in conjunction with all other tender and contract documents.

1.03 Key Performance Indicators.

Performance reviews will be conducted in line with the rules of the Framework Contract for the Multi-Party Framework Agreement for Minor Repair and Maintenance works to Occupied Units & Properties owned or managed by Dublin City Council Housing Department and in line with the Service Level Agreement attached to the Multi-Party Framework Agreement for Minor Repair and Maintenance works to Occupied Units & Properties owned or managed by Dublin City Council Housing Department.

DCC Housing Maintenance Division performance standards are set out in this document under the following headings -

- Quality of Workmanship
  (As outlined in Section 1.25, 1.31 and other relevant sections of this specification)

- Adherence to specification & DCC general terms and conditions.
  (As outlined in Section 1.02, 1.03, 1.44 and other relevant sections of this specification)

- Adherence to DCC instructions
  - *(As outlined in Section 1.02, 1.03, 1.29, 1.30 and other relevant sections of this specification)*

- Time to complete project within set timeframe
- *(As outlined in Section 1.29, 1.30 and other relevant sections of this specification)*

- Response time to queries / communication > 24 hours
- *(As outlined in Section 1.05 and other relevant sections of this specification)*

- Altering material / installation / specification without authorisation
  (As outlined in Section 1.30 and other relevant sections of this specification)

- Health & Safety breaches
- *(As outlined in SEQ PSHP, BRP spec. Section 1.18 and other relevant sections of this specification)*

- Substantiated Negative feedback / complaints
- *(As outlined in Section 1.07, 1.22, 1.23 and other relevant sections of this specification)*

- Quality of records/paperwork
- *(As outlined in Section 1.19, 1.38 and other relevant sections of this specification)*

- DCC inspection reviews poor finding
- *(As outlined in Section 1.19, 1.26, 1.37, 1.38, 1.40 and other relevant sections of this specification)*

All contractors who undertake works under this specification are deemed to be aware of and in agreement with these KPI's and conditions, if a contractor does not agree with these conditions or any within this specification they may withdraw from the framework for its duration.

1.04 Domestic Heating System Service & Repair Framework (S&R).

Any reference in the document below to the 'Framework' or to the 'S&R Framework', or to 'the contract' or 'the tender' should be understood as referring to the Domestic Heating System Service and Repairs Framework, contract and tender.

Any refence in the document below to the operating rules of *Domestic Heating Service and Repair Framework* will not apply to contractors on the '*Multi-Party Framework Agreement for Repairs and Maintenance to Occupied Properties'*, however the same standards of customer service and workmanship and any work methodologies specified below will apply to all works carried out on domestic heating systems under either framework.

Contractors on the *Multi-Party Framework Agreement for Repairs and Maintenance to Occupied Properties'* will not be required to carry out annual service of boilers or heating systems.

In the event of any doubt arising the contractor should clarify with Dublin City Council.

1.05 Domestic S&R in DCC Units.

Repair of domestic gas boilers in Dublin City Council's housing stock and maintenance of boilers as the need arises must be conducted in accordance with **I.S. 813**

Response time to queries / communication from DCC by contractors appointed to the *Multi-Party Framework Agreement for Repairs and Maintenance to Occupied Properties'* shall be the timeframes established and defined in the Service Level Agreement

1.06 Visiting the Site.

By the nature of callout repairs it is necessary where feasible to successfully carryout repair works on a first call basis. Cost can only be included for time and works in the dwelling.No cost associated with travel time or sourcing parts etc. shall be provided. As such it is recommended to have stock of the ten most common parts for the ten most common boilers in contractor vehicles which are dispatched to site for repairs including items such as Carbon monoxide alarms, inhibitor, thermostatic radiator valves, automatic air vents, non return valves, etc.

Invoices for repeat callouts / attendances to site / hours of work due to a contractor not having parts / components deemed by DCC as standard items will not be entertained. The contractor is required for each repair callout at each site prior to commencement to establish the exact scope of work, means of access and working space, facilities for delivery and storage of materials etc. which could in any way influence the works.

Arrangements to visit the site must be made by the contractor making early contact with the residing tenant, contact details will be provided by Housing Maintenance Division.

Appointments must be made with tenants prior to call out. Contact must be by phone call and, text SMS if a Mobile Phone number is provided and knocked to the door in order to count as a 'no access' call-out. In the event of a 'no access' a card must be left through the letter box or under the door, informing the tenant they missed an appointed service/repair callout on behalf of Dublin City Council and contractors contact details must be provided in order to arrange a suitable appointment. A missed appointment must only be recorded if a property has been phone called, text SMS if a Mobile Phone number and knocked to the door and a missed appointment card has been left.

1.07 Access to the Dwelling.

The Contractor must consult with the respective tenants or via DCC staff with regard to the access to each site. This will include suitable times for parking of vehicles and all other matters that may affect them. All arrangements must be agreed with each tenant prior to the commencement of any works, each site will be specific.

No photographs shall be taken which contain any tenants visible in same or any picture frames on shelves etc. with photos of tenants / people displayed.
The Contractor must take all protective measures to ensure that no damage is caused to any parts of the structure or fixtures during the removal of existing equipment, delivery of materials, installation of new equipment including the removal and disposal of rubbish. The Contractor must make good any damage caused.
In the event of a complaint being made or negative feedback from a tenant / member of the public to DCC regarding a contractor or their staff this will be reviewed by DCC, if found to be substantiated then a KPI will be applied.
On infrequent occasions high level access may be required to facilitate works on the outside of a dwelling. In such instances the contractor should notify heating@dublincity.ie and the local DCC inspector in order to ascertain if a DCC platform is available. In such an instance the contractor may be permitted the use of same for the high level works.
Where such an accommodation is not available due to operational requirements, the contractor shall submit quotation for hoist / platform as a variation and include all licences and traffic management required for pedestrians and vehicles.

1.08 Scope of Work.

The works shall include all elements of the heating and hot water system such as but not limited to: boiler, pipework, radiators, controls and domestic hot water cylinder. Boiler repairs can only occur when there is gas in the boiler, if none this counts as no access and will not be paid for by DCC and is to be marked as no gas on the contractor's report and the tenant must be informed.

Repair Callouts - Domestic Heating System:

This shall include the following:

- Let by Test and Soundness test
- Repair of the boiler using manufacturer's parts only.
- Provision of RGI Certificate fully completed and filled out where boiler repair carried out.
- Provision of combustion Analyser printout where boiler repair carried out.
- Provision of Carbon Monoxide detector installation if not present.
- Clear Air locks and balance system
- Repair / replacement of non-boiler elements of heating, controls or hot water system.
- Visual inspection and full completion of all elements, items and details listed on the Domestic Heating System Repair Record sheet (See Appendix B)
- All necessary liaising, co-ordinating and actions required with any respective supplier / manufacturer for replacement parts / repair where boiler or item is still under warranty.
  For warranty items a single one hour labour rate equal to the repair rate will be permitted to be invoiced to cover admin costs of the contractor per supplier for each address per repair.

Note: **Repairs to boilers over €500 total (parts and labour) ex VAT and over 15 years old must be approved** in writing from heating@dublincity.ie .

Note: The Contractor is required to **hold a stock of all standard required parts/components in their vehicles** which are dispatched to site for repairs.

1.09 Definition.

The terms ‘approved’, ‘directed’ and ‘selected’ used in this specification, means the approval, direction and selection by the employer Dublin City Council Mechanical Energy and Efficiency Section (MEES), or their appointed representative.

1.10 Regulations.

The Contractor must also ensure compliance with all relevant Statutory Instruments (SI), current relevant standards and that all equipment and materials incorporated into the various systems must bear the CE mark in the form stipulated and also be fully compliant with the European Pressure Equipment Directive 97/23/EC.
The Contractor must ensure that all works undertaken on this project fully comply with the current Building Regulations and Technical Guidance Documents, including the following:

Dublin City Council Specifications.
Register of Gas Installers Ireland.
IS 813 - Domestic Gas Installations.
Gas Networks Ireland.
Dublin City Council Water Supply requirements.
Irish, European or British Standards.
The Building Regulations & Technical Guidance Documents.
The requirements and regulations of Dublin City Council Waterworks and Sanitary Services Departments.
The relevant sections of the guides and publications as published by the Chartered Institution of Building Services Engineers (CIBSE).
The Safety, Health and Welfare at Work Act, 2005.
Safety, Health and Welfare at Work Act (General Applications) Regulations 2007.
The Safety, Health and Welfare at Work (Construction) Regulations 2013.
Gas Networks Ireland Guidelines for Designers and Builders - Domestic Sites.
The requirements and regulations of Gas Networks Ireland and the Register of Gas Installers Ireland.
The requirements of the European Pressure Equipment Directive 97/23/EC.
European Union Construction Products Regulations No. 305 of 2011.
European Union (Construction Products) Regulations 2013 - S.I. No. 225 of 2013.
S.I. No. 17 - Housing (Standards for Rented Houses) Regulations 2019
European Directive ErP (Energy related Products) 2009/125/EC.
National Rules for Electrical Installations.
IS 238 - Copper Tubes.
IS 265 - Installation of Gas Service Pipes.
IS 813 - Domestic Gas Installations.
BS 2767 - Specification for manually operated copper alloy valves for radiators.
BS 6798 - Specification for selection, installation, inspection, commissioning, servicing and maintenance of gas-fired boilers of rated input not exceeding 70 kW net.
BS 12165 - Above Ground Stopcocks.
BS EN 1057 - Copper and copper alloys. Seamless, round copper tubes for water and gas in sanitary and heating applications.
BS EN 1329-1 - Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure. Unplasticized poly (vinyl chloride) (PVC-U). Specifications for pipes, fittings and the systems.

BS EN 3958-4 - Thermal insulating materials. Bonded preformed man-made mineral fibre pipe sections.
BS EN 12056 - Gravity Drainage Systems Inside Buildings.
BS EN 12449 - Copper and copper alloys. Seamless, round tubes for general purposes.
DCC Specifications for Domestic or Commercial Installations
Asbestos Regulations.
National Rules for Electrical Installations.
Technical Standards as noted in the various clauses of this specification.
Relevant Publications of the Chartered Institution of Building Services Engineers (CIBSE).
SEAI Domestic Technical Standards and Specifications Version 1.3 2020.
Issued Preliminary Health & Safety Plan
National, regulatory and best practice guidelines and requirements for working during Covid-19 pandemic
CIF SoP and guidelines for working during Covid-19 pandemic
SEAI requirements as published in Domestic Technical Standards and Specifications Version 1.3 2020.

1.11 Standards and Codes of Practice.

Where standards and codes of practice are referenced in this specification, the Contractor must ensure that all references made, are to the latest editions.

1.12 Duties, Taxes and Value Added Tax (VAT).

Refer to published accompanying tender documentation.

1.13 Tax Clearance Status.

Refer to published accompanying tender documentation.

1.14 Insurances.

Refer to published accompanying tender documentation.

1.15 Payments and Retention.

Payments to the Contractor for the completed and tested works will be in accordance with the tender documentation and conditions contained in Dublin City Council contract to be signed by the contractor prior to inclusion on the framework. Invoices will only be processed following receipt of all required correctly formatted information post works.

1.16 Liability for Defects.

The Contractor will be responsible for the rectification of any defects that develop after repair of a specific item carried out. The defects liability period which shall be for a period of no less than 12 months post completion, this shall include all labour and material.

1.17 Services Charges, Fees and Contributions.

N/A

1.18 Safety, Health and Welfare at Work (Site Safety).

Prior to commencing work on any site as part of this framework, the Contractor must produce a current safety statement, risk assessments and a method statement, together with all other job specific documentation required in accordance with all applicable, relevant & current Health, Safety & Environmental legislation, codes of practice and industry best standards.

Periodic unannounced inspections shall take place by DCC staff and appointed persons to carryout adherence to health & safety requirements.
The contractor shall read and be aware of the Preliminary Safety & Health Plan which has additional information on contractors H&S requirements. In addition breaches outside the inspection deemed serious by DCC and / or project consultants shall incur a KPI demerit.

1.19 Records of Existing System.

Prior to undertaking any work whatsoever on the existing installation, the Contractor must make a detailed record of the existing system and equipment elements upon which the work will be undertaken with information in Appendix A to this document recorded for Servicing, and Appendix B to this document, for Repairs. The record must include good quality clear coloured photographs of any item which is to be replaced and/or repaired before and after the works together with the capacities and model references numbers. Photographs of the front of the boiler with all visible parts must be included. Photographs shall be colour only, of a quality that are clear and detailed at a printing size of A4 each per photograph, images scaled down or compressed below this level are not acceptable.

The Contractor must allow for the removal of all existing redundant plant, ancillary equipment, pipework, fittings and fixings to allow for works to proceed. It is essential that all redundant items of equipment, materials, fixings, pipework and fittings are fully removed and properly disposed of as outlined in the relevant clauses of this specification.

The Contractor is to be cognisant of the fact that the ‘work sites’ are people’s homes, and they shall therefore be left in a clean, safe and acceptable condition, and with the least amount of possible disruption

1.20 Convenience of Occupants.

The Contractor must ensure that measures are put in place to ensure that occupants or other persons, are not inconvenienced during the course of works.
This shall include the provision of some temporary local electrical heaters during the course of works shall the repair not be capable of being successfully completed upon first site visit. 1 No. portable 2.0kW oil-filled column type electric radiator in each bedroom and 1 No. in the living room shall be provided by the contractor at no additional cost as part of this contract.

1.21 Limitations on Working Hours.

The Contractor must ascertain from the tenant if there are any limitations on working hours during the course of the particular works.
The Contractor must fully comply with any limitations on working times imposed by the tenant or DCC Mechanical and Energy Efficiency Section.

The contractor shall note that this framework involves works 365 days of the year including public holidays where deemed necessary by DCC MEES. Due to the nature of the works for

the repair callouts a contractor may be required to work during the full 24 hour day, any day of the year including Saturday, Sunday and public holidays in order to provide heat and hot water repair services to DCC tenants. Contact details provided by the contractor shall be staffed and active 24hours a day 365days a year to respond to a DCC callout if required.

Annual servicing of boilers is not required on public holidays or Sundays but is to be provided Monday-Saturday from 7am – 8pm as standard.

1.22 Control of Noise and Pollution.

Comply with Statutory Requirements relating to control of noise levels on each particular site. The generation of noise resulting from works outside normal working hours, will not be permitted.
The Contractor must not contribute to or cause pollution. The Contractor must not store or dispose of any materials, rubbish or redundant equipment on the site, or surrounding areas. In the event of a complaint being made or negative feedback from a tenant / member of the public to DCC regarding a contractor or their staff this will be reviewed by DCC, if found to be substantiated then a KPI will be applied.

1.23 Protection of the Works and Site.

During the course of the works the Contractor must ensure that in areas where work is being undertaken that adequate and suitable physical protection to the building fabric is put in place and maintained at all times. Temporary portable fire extinguishing equipment and fire blankets must also be in place at all times in the work area in accordance with risk assessment and method statement.
The Contractor must provide adequate physical protection for all equipment and pipeline accessories during the course of the work. The protection must be strong and impervious so as to guard against the activities of all following wet and dry trades.

Redundant items of equipment must be removed from site promptly and must not be stored on any adjoining property or allowed to cause a work or access hazard or obstruction at any time.

1.24 Fabrication and Installation Drawings.

Where replacement of equipment or pipework is unusual or difficult, as deemed by DCC, the Contractor must provide a fabrication and/or installation drawing or sketch when requested to do so. This requirement must also be complied with should the client, or client's representative, make this request.

1.25 Improper Works and Materials.

The Contractor must ensure that all workmanship, materials and equipment where servicing or repairs take place, must be carried out to an acceptable standard or in accordance with this specification. Any work considered by DCC to be sub-standard, must be redone and equipment replaced as necessary. Failure by the Contractor to comply with such an order, may result in the works being rectified by others appointed by DCC. All costs incurred to correct the defects will be recoverable by deducting an appropriate amount from the remaining monies due to the Contractor. For items such as pipework, insulation etc. being

replaced as part of a repair callout the material used must be as per the current installation quality and type i.e. copper pipe work shall only be replaced with copper pipe work of the same type and grade etc. Carrying out a repair on copper pipe work with a plastic or other material pipe will not be permitted.

1.26 Works to be Covered Up.

All works that will be concealed later, or at any stage in the project, must be recorded by photographs. The Contractor must also give immediate notice to the DCC inspector or representative, in order that inspections can be undertaken, prior to concealment. Where notice is not given in time, and/or works are subsequently concealed, without the necessary inspection or photographic record, the Contractor may be required to uncover the work and reinstate it at their own expense. Photographs shall be colour only, of a quality that are clear and detailed at a printing size of A4 each per photograph, images scaled down or compressed below this level are not acceptable.
Before proceeding with work that will cover and conceal previous work, or allowing other trades to do so, the Contractor must give early notice to the DCC MEES inspector or representative allowing an opportunity to inspect the work before it is covered up.
Inspections of concealed works will not in any way relieve the Contractor from full responsibility for the quality of the work throughout.

1.27 Builders work and Fixings to the Structure.

The Contractor must include for all builders work when carrying out a repair. This will include drilling or forming of openings and holes to accommodate items such as a boiler flue and pipework services together with all making good. All openings whether formed or drilled, must be made good with material similar to the building element through which the flue or pipework passes. Where the building element is a fire compartment, the making good must take the form of suitable fire rated material. This process may require the services of a specialist firm. The Contractor must ensure that all fixing devices and anchors used for attaching pipework and equipment to the building structure, in all the installations, must comply fully with the 'Code of Practice for the Design and Installation of Anchors' as published by the Health and Safety Authority of Ireland. Expanding foam, of any type, will not be permitted under any circumstances, for use in any part of the new installation to secure components or seal openings. Any foam type material subsequently discovered on any new installations or repairs, must be removed by the Contractor.

For some repair works which involve items currently concealed etc., boxing may be required for some sections of the new repaired elements. Boxing shall be made to suit each specific run required and comprise of MDF or Plywood with timber battens. None of which must not cause irritation during the handling and installation process and must not be manufactured from material that is in any way carcinogenic to humans. Rough unfinished edges on boxing shall not be left exposed, exposed corners of boxing shall be finished in right angled 90 degree corner timber beading of no less than 15mm x 15mm profile. Boxing shall be finished coated with a primer to enable the tenants to paint directly over after installation.

Pipe work routed from one room to the next through walls, floors, ceilings etc shall be sleeved. The ope around the sleeve shall be sealed with a suitable sand/cement mix or plaster. Expanding foam, of any type, will not be permitted under any circumstances, for use in any part of the new installation to secure components or seal openings. Any foam

type material subsequently discovered on any new installations, must be removed by the Contractor.

Boxing shall be made and installed to house the new pipe work, fixing and insulation of pipe work. The profile of the boxing shall be rectangular in shape running at high level along the wall installed so the thinner section of the profile is against the wall. The same shape profile shall be maintained for drops to low level, the boxing shall terminate at skirting level. All ends of boxing shall be sealed with same material the boxing is made from.
Sections for boxing shall not be cut inside the tenants dwelling, in order to reduce dust and inconvenience, all such sections of boxing shall be manufactured outside of the dwelling in a suitable location or offsite.
In certain circumstances with the authorisation of DCC staff, following inspection, the contractor may utilise current existing boxing installed in order to reduce inconvenience to the tenant arising from works and decoration.
For any new boxing installed by the contractor under these works or existing boxing replaced which is opened all front panels are to be screwed & cupped washer to allow for future removal.
Any new boxing installed by the contractor shall not impede on the tenants use of fixings or features (light switches, door openings etc).
All new boxing shall be installed in such a way that drops to low level, occurring in the corners of rooms.

The use or installation of drops / boxing is to be considered prior to any repairs taking place and pre-planned in such a way that drops / boxing is to be kept to a minimum e.g. relocation of radiators from one wall to another may eliminate this, on the basis that the radiator is fully functional and this is with the tenants agreement.
In all circumstances boxing is to be sized specific to each installation and is not be in standardised sizes, all boxing is to be the minimum size required to complete the works. Boxing at low level can involve a number of pipes from a minimum of 2 up to 8 pipes in some instances. In some cases boxing may have to run at low level underneath radiators, in such a condition clearance shall be a minimum of 40mm between the top of the boxing and bottom of the radiator.

1.28 Electrical Works.

The Contractor must ensure electrical works when installing or repairing electrically powered items such as pumps, immersions, motorised valve actuators etc. to the existing boiler and ancillary equipment is up to standard, specification and DCC requirements. The wiring to new equipment, including all protective and isolation devices must be new and all fully labelled. Existing or new wiring must be certified acceptable by Safe Electric REC electrician. All electrical work must be undertaken, tested and certified only by a fully qualified electrician registered with Safe Electric, evidence of same must be provided with the submission. The Contractor must also provide fully completed Safe Electric REC certificate if required or requested by DCC.
The electrical supply available within the domestic dwelling will be single phase as supplied by ESB Networks. All equipment requiring an electrical supply supplied by the Contractor must be suitable for this supply. The heating system shall be supplied by no less than a 10A Type B RCBO. Cross bonding of all pipe work currently on site should be checked and confirmed.
Bonding of mains gas pipe shall be via a minimum 10mm sq. cable.

All electrical works must be undertaken by the Contractor and be fully in compliance with the current edition of the National Rules for Electrical Installations.

All equipment must be wired and electrically connected in accordance with the manufacturers specific instructions.

The Contractor must allow for the removal of existing redundant electrical supplies to the existing boiler and ancillary equipment.

All wiring to be neatly labelled and be fully in accordance with IS 813 and the National Rules for Electrical Installations.

The electrical installation must comprise wiring in a closed PVC conduit or trunking system with matching fittings and accessories to allow proper protection and terminations for cables. Loose cables will not be permitted and cable ties must not be used. All conduit, fittings and accessories must be secured using plastic saddles securely fixed to the structure. Installation shall be via hard wiring in trunking with only local flex located in hot press areas. Plastic cables ties are not a permissible form of securing cables.

The Contractor must configure multi-core cables serving each control item of equipment, pumps and the boiler, to facilitate correct terminations in the wiring centre. The wiring centre must incorporate a separate neutral and earth bar to facilitate multiple terminations and ensure a tidy repair.
The Contractor must include for the wiring interconnection of the carbon monoxide detectors, time control programmer, thermostats, motorised valves, isolation relay, circulating pump and the gas fired boiler.

If the existing cabling on site to the immersion does not conform and is not acceptable to be reused then the contractor shall immediately notify DCC MEES who will arrange for DCC Electrical Services to rectify same, in such an instance the contractor shall notify DCC MEES within 48 hours of receiving the details of the works from DCC MEES.
If there is no existing cabling on site as there is no current immersion then the contractor may proceed to install a new cable from the new immersion to the existing fuse board.

The immersion shall be wired to a switch outside the hot press in line with Safe Electric REC requirements from an individual circuit on the fuse board.
On completion and testing of new electrical installations, a fully completed and signed certificate, Cert No. 1, must be provided by the Contractor in accordance with the National Rules for Electrical Installations.

1.29 Order of the Works.

The installation or repair work shall be carried out in a timely manner and shall be completed within the following timeframes:

Repair Callouts:
– Contact tenants within 24 hours from allocation by DCC
– Attend site within 48 hours from allocation by DCC (provide electrical radiators)
– Successfully rectify issue within 96 hours from allocation by DCC

– Call back to site after above, within 24 hours from notification by DCC

The Contractor will be responsible for all other disciplines required to undertake and complete the works such as the electrical work and any necessary builders work.
DCC may from time to time, prioritise works, and the Contractor must action these in the order advised. The contractor shall note that works may be allocated individually or in batches.

During the course of the S&R in certain instances other works will be taking place on individual dwellings as part of a larger upgrade suite of works such as window replacement, external insulation of housing etc. In such instances the contractor will be required to liaise and co-ordinate with the main contractor carrying out such works on the specific site to arrange dates / times for access and scheduling of the S&R.

1.30 Repair Requests on ageing stock

A written request submitted via email shall be required if the repair works for a specific address (UPRN) are to be invoiced to DCC in excess of €500 ex VAT for the total repair i.e. parts & labour **AND** the boiler is over the age of 15 years old.
All requests or changes must be approved in advance of actually being carried out. The Contractor shall submit a request via email to heating@dublincity.ie referencing the UPRN, Address, additional costs and extra works in advance of any requests actually being carried out. The title/subject of the email shall be Repair Request for UPRN and address i.e. Repair Request for UPRN 12345 27 Heat Street, DCC will revert with acceptance to proceed or refusal of same via email.
It is the contractor's responsibility to obtain the written authorisation, failure to submit same will result in invoices not being processed and a KPI being issued if requests were unauthorised by DCC.
Any request shall not be greater than the rates specified and accepted as part of the returned schedule of rates. For items that have not been listed in the schedule of rates document, DCC is not obliged to accept any such request and reserves the right to accept or refuse a proposal at its discretion.
Failure to adhere to the above conditions will result in invoices being delayed or refused until such time as the correct paperwork is submitted.

1.31 Project Workmen and Specialists.

All work must be carried out to the highest standard of workmanship, in full conformance with good practice and procedures. Only fully qualified, certified, time-served operatives with the necessary training, specific skills and experience in the appropriate discipline will be permitted to undertake the replacement work.
The S&R heating systems shall only be carried out by a RGII/OFTEC approved and registered operative/contractor for related elements. The competent persons shall have the expertise, qualifications and calibrated equipment to carry out the works, testing and commissioning required to fully comply with all relevant standards and utility requirements.
The contractor shall be fully responsible for and exercise total control over all activities that affect the quality of the work and of the materials to the requirements of this specification, I.S.813, Gas Networks Ireland and The Register of Gas Installers of Ireland.
Operatives working on or certifying the natural gas boiler and gas pipework installations, must be compliant with document CER/09/083-B and a fully registered member of the Register of Gas Installers of Ireland. RGI badges shall be displayed at all times. An RGI is

only permitted to certify his or her own work or that of a Registered (RGI) Trainee under supervision.
All RGIs are required to undergo a formal accredited "Domestic Gas Safety Assessments" (DGA) in an Accredited Assessment Centre every 5 years, evidence of successful completion of same for the RGII may be requested at any time by DCC MEES.
All plumbing works shall be carried out by a fully qualified tradesmen with Fetac Level 6 Certificate in Plumbing or equivalent.
All electrical work must be undertaken, tested and certified only by a fully qualified electrician registered with Safe Electric. The Contractor must also provide fully completed Safe Electric REC certificate if required or requested by DCC.

Garda Vetting: All contractors, staff and subcontractors used for Dublin City Council works may be required to obtain Garda clearance. The contractor shall provide a statement to DCC MEES for their operatives confirming that there is no criminal record or specific information relating to their operatives which would prevent same from being successfully vetted.
The contractor shall as part of their submission provide their "Lone Working Policy" for review and comment. This policy is to be provided prior to works commencing.
The contractor shall prior to the signing of the contract agree to act as PSCS in line with HSA requirements for the project prior to any works commencing.

1.32 Project Meetings.

The Contractor must be available to attend project meetings as required at the commencement, during and at the conclusion of the framework. These meetings will take place, as necessary on site and in the offices of Dublin City Council Mechanical and Energy Efficiency Section. There shall be no charge by the contractor for such meetings.

1.33 Removal, Re-Cycling and/or Disposal of Equipment Packaging.

The Contractor shall provide covered rubbish containers as required and all rubbish shall be deposited in them prior to being removed from site for proper disposal. The location of containers must be agreed with the client. Loose rubbish, the accumulation or disposal of rubbish on site will not be permitted. The Contractor shall on completion of the project remove from site all unused materials, plant and any remaining rubbish.
All recycling and disposal of packaging to be in accordance with the Waste Management Legislation as implemented by the Environmental Protection Agency Act, Waste Management Act and the Protection of the Environment Act.

1.34 Re-Cycling and/or Disposal of Redundant Equipment and Rubbish.

The accumulation of rubbish on site will not be permitted. During the course of works, the Contractor must remove all redundant equipment and materials from the site immediately.
The Contractor must ensure on completion of the project, that no unused materials, plant and equipment remains on the site. All recycling and disposal of rubbish or equipment to be in accordance with the Waste Management Legislation as implemented by the Environmental Protection Agency Act, Waste Management Act and the Protection of the Environment Act.
The contractor shall at the discretion of DCC MEES separate on site, record quantity in writing & via photographs and securely store in their premises certain specific materials at the request of DCC MEES which may at the discretion of DCC be collected by DCC staff / approved agents or delivered by the contractor to a DCC specified facility for disposal. An alternative arrangement may also be acceptable. Photographs shall be colour only, of a

quality that are clear and detailed at a printing size of A4 each per photograph, images scaled down or compressed below this level are not acceptable.

1.35 Testing, Commissioning and Setting to Work.

A Let by test and soundness test must be carried out with a minimum stabilisation period and test duration of 2 minutes respectively for each test, shall take place prior to any Service or Repair.

The Contractor shall carry out all necessary tests on the pipework, equipment and system prior to commissioning and setting it to work. A complete system operation must be undertaken and all equipment checked and confirmed as functioning correctly and in accordance with the specification and standards.

1.36 Identification and Labelling.

All newly replaced items of mechanical and electrical equipment, plant items and accessories, shall be provided with labels clearly indicating their reference and name.

The main isolation gas valve must be clearly labelled, the ON/OFF direction of operation indicated and the lever coloured yellow.

The main isolation stopcock for the incoming mains water must be clearly labelled.

All gas pipework must be painted yellow and clearly labelled throughout.

Warning labels shall be coloured white-red-white and descriptive labels white-black-white. They shall be constructed from 3 ply 2mm Traffolyte or approved equivalent, securely fixed to the item concerned. Lettering shall be 20mm high block capitals. Abbreviations will not be allowed unless prior approval has been given by the DCC Mechanical and Energy Efficiency Section. Approval for the type and layout of labels must also be obtained before setting the work in hand.

Gas pipe work serving domestic boilers shall be adequately sized for the run by the contractor and shall not be less than ¾'' or 22mm supply to any individual boiler.

When the boiler service is completed an identification label shall be affixed to the front of the boiler in a clearly visible position stating service date, contractor and serial number of the boiler in the format agreed with MEES.

Photographs shall be colour only, of a quality that are clear and detailed at a printing size of A4 each per photograph, images scaled down or compressed below this level are not acceptable.

1.37 Handover and Instruction in the Operation of the System.

When the S&R works are satisfactorily completed, fully tested and set to work, the Contractor must inform Dublin City Council Mechanical and Energy Efficiency Section via FMS.

The contractor shall notify the relevant local DCC Inspector on the ground via text / WhatsApp / other agreed means of the completion of the works **(for each and every repair)** if requested.

The handback to the tenant must include a full overview of the new and existing system together with instruction in the operation of each item of equipment and the complete system including a demonstration of the correct operation of all items to the tenant.

1.38 Record Documentation.

The Contractor must provide all the record documentation, as outlined below on a monthly basis. The files uploaded shall be individually clearly named to identify specifically what each file is.

NOTE: The relevant project specific information requested on all standard forms in the appendices at the back of this specification, must be fully completed and legible.

Details of the method for uploading the information to Sharefile will be provided by contacting the DCC Mechanical and Energy Efficiency Section. See below and Appendix D for requirements.

Sharefile: The contractor shall be responsible for uploading the files to the Sharefile system in the specified naming and filing format of DCC requirements. Completeness of the uploaded information will be reviewed prior to invoices being signed off by DCC.

Folder 1: Name "**Forms**" to include sub folders for
Sub-Folder 1. RGII.
Sub Folder 2: Appendix A(Domestic Heating system service & inspection record)
Sub Folder 3: Appendix B(Domestic Heating system Repair Record

Files uploaded into the forms folder must be labelled by UPRN and address
e.g. "UPRN 12345 27 Heat Street (P)"
DCC H&S Inspectors will be reviewing and attending sites to carryout unannounced inspections of compliance.
Photographs shall be colour only, of a quality that are clear and detailed at a printing size of A4 each per photograph, images scaled down or compressed below this level are not acceptable. Separate uploads of Photographs in jpeg format may be required if Appendix A or B photographs are not clear, detailed and in colour.

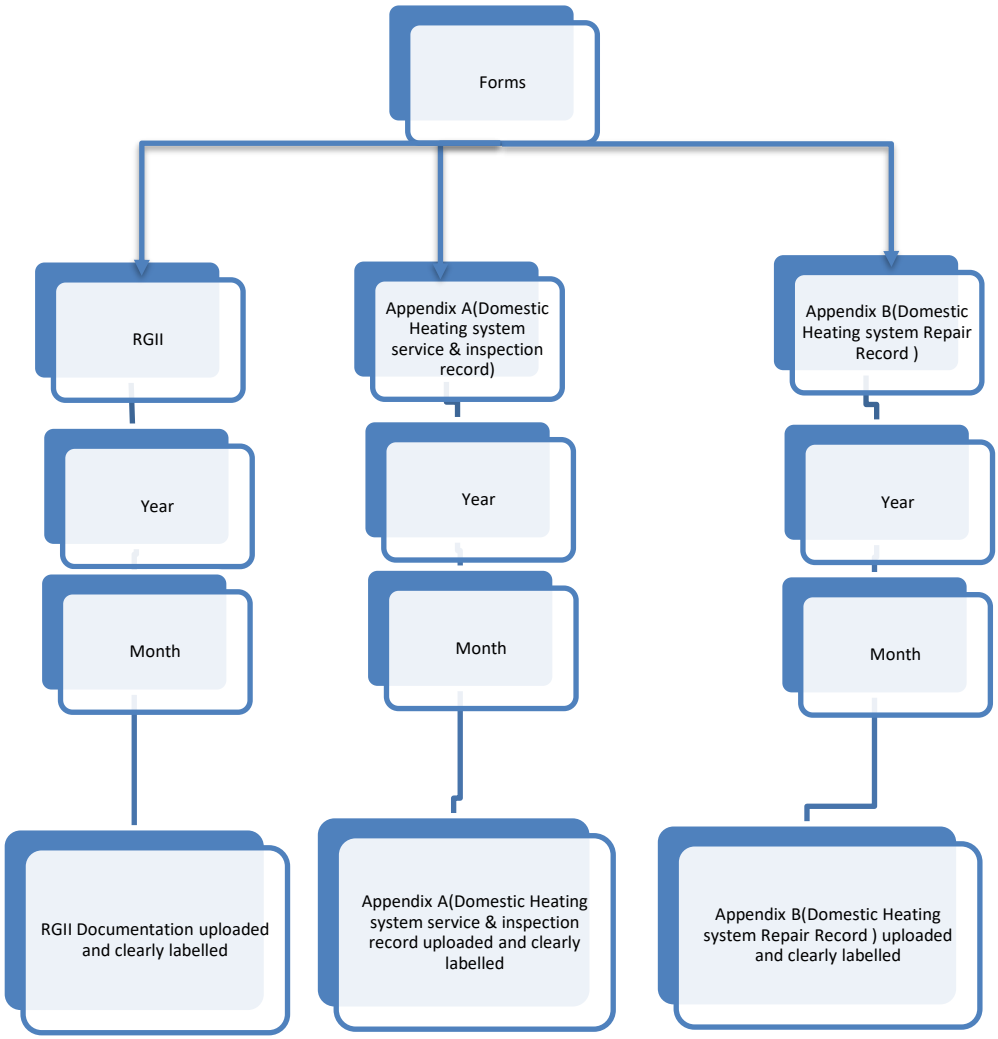
Folder 2: Name "**Reports**" to include sub folders for:
Sub Folder 1: Service Reports
Sub Folder 2: Repairs Reports
Sub Folder 3. Carded Reports

All Service, Repair and Carded Reports must be uploaded in the exact format sent to contractors with all information included. One row in the report must represent one service or repair per address. Under no circumstances can one service/repair represent multiple rows. Carded properties must only be included on the Carded Report if a property has been Phone called, text SMS if a Mobile Phone number and knocked to the door on 3 separate days. When the first occasion of no access to a property occurs, a property must be left a card through the letter box or under the door, informing the tenant they missed an appointed service/repair callout on behalf of Dublin City Council and contractors contact details must be provided in order to arrange a suitable appointment. If no access has occurred 3 times and 3 cards have been left, only then should this be added to the carded report

Folder 3: Name "**Invoices**" to include sub folders for:
Sub Folder 1: Service Invoices
Sub Folder 2: Repairs Invoices

Each of the above Sub folders for Folder 1-3 must contain sub folders with the Year and Month in which the monthly Forms, Reports and Invoices are uploaded. Each month a new folder within each sub folder must be created for the location of that months documentation.

Failure to follow this setup by the contractor will result in the invoice being placed on hold until the required information is uploaded and saved in the correct format and location. Where forms are completed by hand, and / or signed, all information must be LEGIBLE and completed in black ink. All information provided must be fully legible and abbreviations must not be used.


Forms
RGII
Year
Month
RGII Documentation uploaded and clearly labelled
Appendix A(Domestic Heating system service & inspection record)
Year
Month
Appendix A(Domestic Heating system service & inspection record uploaded and clearly labelled
Appendix B(Domestic Heating system Repair Record)
Year
Month
Appendix B(Domestic Heating system Repair Record) uploaded and clearly labelled

1.39 Servicing List

A full list of properties shall be provided by DCC for servicing requirements. Boiler servicing must not take place in a property where a boiler was installed in the last 9 months or was serviced within the last 9 months

From time to time DCC may upgrade properties to include heat pumps. If a property with a heat pump arises when trying to service, this must be removed from the servicing list and emailed to heating@dublincity.ie informing them this is a heat pump site.

The contractor shall achieve a 90% success rate in the annual servicing of boilers / heating systems after each 365 consecutive day period from the awarding of the contract. A minimum 90% success rate including carded properties must be achieved for each six month period. Failure to achieve this threshold will result in the application of service credits.

Service calls shall not interfere with nor suffer due to the operational requirements of repair callouts i.e. staff shall not be taken from one to fulfil the needs of the other, to the detriment of either obligation.

1.40 Monitoring and Warranty Period.

If any equipment or part thereof shows signs of weakness owing to faulty manufacture or poor workmanship on the part of the Contractor, the Contractor shall, at his own expense, repair or remove such equipment or articles and substitute others for them as necessary. The cost of making good any defects that may arise from want of proper care or management by the Employer in the running of the plant shall be excluded from this guarantee.
All manufacturers' guarantees and warranties on equipment shall be valid for the periods stated. Copies of all guarantees, including the valid period of guarantee, shall be recorded.

The required warranties for each item of equipment shall be as follows:

TRV's:	Parts	- 5 years.
Controls:	Parts	- 5 years.
HW Cylinder:	Parts	- 10 years.
Valves:	Parts	- 2 years.
Radiators:	Parts	- 10 years.
Magnetic Filter:	Parts	- 2 years.
All Other Items:	Parts	- 12 months

All necessary liaising, co-ordinating and actions required with any respective supplier / manufacturer for replacement parts / repair where boiler or item is still under warranty. For warranty items a single one hour labour rate will be permitted to be invoiced to cover admin costs of the contractor per supplier for each address per repair.

1.41 DCC Mechanical Energy and Efficiency Section (DCC MEES).

DCC MEES reserves the right to develop, modify and update this specification in the future in line with prevailing, evolving regulations / standards and Dublin City Councils internal requirements. The Contractor, in accepting the works, agrees to comply with any additional requirements as issued in any updated specification or requirements of DCC.

1.42 Changes In Legislation' As A Condition Of Award (Brexit)

It shall be the sole responsibility of the contractor (in the event of success in this competition) to fulfil the obligations under the Contract, notwithstanding any changes in circulars, laws, regulations, taxation, duties or other factors which might arise following the withdrawal of the United Kingdom from membership of the EU.

1.43 TUPE

The contractor shall note and be aware of their responsibilities with regards to TUPE and requirements under Irish and European legislation and shall comply with same.

1.44 Terms & Conditions

The contractor shall be aware that by taking part in the framework they are knowingly agreeing that their services being offered are and will be subject to the DCC general terms and conditions in addition to published accompanying tender documentation.

1.45 Energy Credits

The contractor shall be aware that neither they nor any suppler, agent or entity is permitted to claim any energy credits related to these works. The property owner must give written consent to the obligated party agreeing to assign energy credits to them, as Dublin City Council is the owner of all properties under this programme all energy credits will be reclaimed by Dublin City Council exclusively.

If a contractor fails to carryout service, repairs or installations as detailed in this document and such action results in DCC loss of associated energy credits due to a non compliant works or part thereof, then the contractor shall credit DCC for an equal monetary amount to that loss arising from negligence during works. Refer to SEAI requirements as published in Domestic Technical Standards and Specifications Version 1.3 2020.

SECTION 02
GENERAL SPECIFICATION SECTION

2.01 General Pipework Replacement.

All ends of piping shall be reamed out to full bore and left smooth and clean of scale before being jointed. No sharp elbows shall be allowed and all bends and sets shall be of the largest radius possible and such that no change in area occurs in any part of the bend.

All pipes shall be fitted at sufficient distance from the walls, ceiling and columns so as to readily allow for cleaning behind the pipes. Where insulated, they shall be fixed at sufficient distance from the walls, ceilings and columns and from each other to allow suitable covering. The clear distance between pipes and walls and between the insulation on covered pipes and walls as well as between the adjacent covered or uncovered pipes shall be not less than 15mm.

All pipework must be true in shape and any kinked or distorted pipework or pipework fittings, must be removed and properly renewed. The Contractor must also ensure that other sections of pipework or fittings are not damaged during the rectification and /or replacement procedures.
Special precautions shall be taken by the Contractor to ensure that dirt and rubbish does not enter the pipework during erection. Any pipework obstruction or damage to equipment resulting from lack of protection, must be immediately corrected by the Contractor at no additional cost to the Contract.

2.02 Copper Pipework.

Copper piping shall be solid drawn light gauge copper tubes to BS 2871: Part 1 Table X (BS EN 1057) with all joints bronze welded. Copper tubing not to this standard will be rejected. Suitable and approved mechanical compression fittings shall be used only in exposed or accessible locations, at valves or connections to equipment.
All pipework shall be of uniform thickness, clean, smooth and free from all internal and external surface defects. The ends of all tubes shall be cut square and reamed out to remove all internal burrs, prior to undertaking any jointing.

2.03 Copper Pipework Fittings.

All bends in copper tubing shall as far as possible be made by cold forming in a bending machine with correct formers or by hand bending with a suitable spring. The tubing shall be annealed before bending. All bends shall be truly circular throughout the full bend and be free from all ripples or kinks. Any bend with kinks, ripples or that are distorted will be rejected.

Fittings shall be of the end-feed brazing type to EN 1254. Compression fittings shall be in accordance with BS 864-2 and must be only used where disconnection is required. Where brazing fittings are used the pipe shall be reamed out and thoroughly cleaned with fine wire wool prior to making the joint. All residue at joints from the brazing process must be cleaned off with wire wool and by cleaning down with warm soapy water and thoroughly drying off all water and moisture. This applies, in particular, to uninsulated pipework exposed to view.

Press copper pipework fittings may be used if standard compression fittings cannot be satisfactorily installed on the same pipework, where press copper is used then the pipe sizes i.e. metric or Irish shall be provided.
The bronze welding (hard soldering) must be carried out using an approved bronze filler rod and flux. The filler rod shall contain phosphorous to prevent oxidation of the joints and shall

have a composition of 96% copper, 6% phosphorous and 2% silver. The flux used shall have a borax base and be suitable for use as a paste.
The residue from the hard soldering process must be cleaned from all joints after repairs to prevent staining and corrosion and to extend the joint and pipework life span.

Where compression fittings are used they shall be manufactured to comply with the requirements of BS EN 1254-2. Compression couplings will not be acceptable in any inaccessible locations.
All fittings shall be free from mould marks and/or pitting. Great care shall be taken during installation to ensure that they are not scored or disfigured in any way. A Stillson shall not be used to tighten fittings. Proper compression couplings spanners of the correct size shall be used at all times and in all cases.

2.04 Pipework Brackets and Supports:

All necessary supports for carrying the piping and other plant must be provided and installed by the Contractor.
Supports shall be of approved design, smooth and free of projections or sharp edges and arranged so as not to interfere with the free expansion of the pipes. Supports shall be fitted at sufficient intervals so that the entire pipework is securely fixed to the building structure.
The Contractor must use standard pre-manufactured proprietary bracketing systems fabricated under factory-controlled conditions. Each bracket shall be of the metal type. Plastic is not acceptable and shall not be used.
Straight lengths of horizontal and vertical pipework shall be supported at the following maximum intervals:-

Spacing of supports (Metres) for copper pipework:

Pipe Bore	Spacing
15mm	900mm
22mm	1,500mm
28mm	1,800mm

On short lengths of pipework, brackets must be provided before and after every tee or bend in vertical and horizontal pipework. The spacing and positioning of the brackets must ensure that the pipework is adequately supported but with sufficient allowance for expansion and contraction.
The Contractor shall be responsible for ensuring that adequate provision is made for taking up expansion and contraction of pipes at all points where undue strain will be imposed on pipework due to expansion and contraction. Where pipework is run at low level and serving radiators, it shall be fixed at a distance from the wall to ensure that the connections to radiators rise vertically in all cases. Connections rising at an angle will not be accepted i.e. centre line of radiator connection must be vertically over centre line of pipework serving it.

The Contractor must take note that perforated steel band, plastic coated or galvanised, will NOT under any circumstances, be acceptable to support pipework or equipment.

2.05 Wall and Floor Pipework Sleeves.

The Contractor must install pipe sleeves where pipes penetrate walls and floors if necessary. The sleeve size shall give a minimum of at least 5 mm clearance between the pipe and the inside of the sleeve. The sleeve shall finish flush with the wall or floor. Where sleeves are

installed in wet floor areas then the sleeve shall finish 20 mm above the final finished floor level. The Contractor will be responsible for the correct installation of the sleeves.
Suitable temporary spacers shall be used in the annular space during the installation of the sleeves to ensure that they are placed concentrically on the pipework. Sleeves material must be manufactured from copper pipework. Where pipework is thermally insulated, the insulation shall be terminated at the wall and not be enclosed in the sleeve.

2.06 Fixing Devices and Fixings to the Structure.

All fixing devices shall be electro-chemically compatible with the material to which the fixing is to be attached and in general shall be non-ferrous to prevent corrosion. Copper or copper alloy materials shall not be installed in direct contact with ferrous materials.
The Contractor must ensure that all fixing devices and anchors used for attaching pipework and equipment to the building structure, must be suitable for the application and fully comply with the Code of Practice for the Design and Installation of Anchors as issued by the Health and Safety Authority.

2.07 Pipework Thermal Insulation.

All pipework thermal insulation must be of pre-formed closed cell structure sections with a Class 1 or Class “O” surface spread of flame in accordance with BS 476 and incorporate a vapour barrier and built-in anti-microbial protection to reduce mould and bacteria growth.
The insulation must be dust free, fibre free, CFC free with an ODP of zero. It must not cause irritation during the handling and installation process and must not be manufactured from material that is in any way carcinogenic to humans.
The insulation must be installed un-slit, depending on the layout of the pipework. All longitudinal and circumferential butt joints in the pipework insulation shall be jointed with an adhesive supplied by the insulation manufacturer or an approved and acceptable alternative. Adhesive tape must not be used to secure the insulation to the pipework.
All insulating materials used throughout the Contract works must be incombustible or "self-extinguishing". Class 1 or Class ‘O’ surface spread of flame grade. This must also apply to all vapour sealing and any other finishes. All insulating material used shall comply fully with the requirements of BS 476, Parts 6 & 7.
Insulation shall have a maximum thermal conductivity of 0.035W/mK at a mean temperature of 40^{O}C and be to the thickness and type as specified or noted elsewhere in this specification.

2.08 Valves and Stopcocks.

Isolation and regulating, drain cocks, stopcocks and safety valves, shall be installed in the positions noted in this specification. The type of valves and cocks for each service must be provided as noted.
Safety valves must be provided on all boilers and pressurised water heaters. Every safety valve must incorporate a method for testing and where applicable, be designed to prevent unauthorised tampering with the set pressure. Safety valves must be installed in the upright position. Outlet piping from valves shall be sloped downwards to ensure adequate drainage of discharge. All safety valves must not discharge horizontally and must incorporate a drain pipe. The drain pipe must terminate 150mm over outside ground level, be turned in at 45^{O} where exiting through an external wall or be piped to drain via a tundish.

All safety valves must be manufactured in accordance with BS 6759 Pt 1, EN ISO 4126.
Drain cocks shall be provided on all low points and as noted in this specification and sketches. Drain cocks shall complete with hose union and blank cap secured to the body of the cock.

Drain cocks must be installed in locations that are easily accessible, allow easy connection of a hose and operation of the cock.
Any valves which are installed as part of the works and are concealed shall be fitted with a fire rated access hatch. The fire rating of the hatch shall be equal to the adjoining wall / ceiling and maintain the continuity of its fire rating as per TGD-B.

2.09 Pipework Testing.

All works on new and existing gas pipework installations must successfully complete tests as outlined in other parts of this specification.
In general for new pipework on the wetside, test pressures shall be 1.5 times the maximum working pressure of each system subject to the minimum test pressure of 2.0 bar.
Tests must be carried out by the Contractor in accordance with good practice in accordance with the Safety and Health requirements together with ensuring that all safety measures and warning notices are all in place prior to and for the duration of each test period.

2.10 Painting and Corrosion Protection.

The Contractor must allow for protecting all ferrous materials with a suitable protective paint to prevent rust formation or corrosion. Surfaces to be painted must be thoroughly cleaned down prior to applying the paint. The Contractor shall ensure that the paint is applied in accordance with the manufacturer's instructions to provide the necessary protection and to suit the particular location.

2.11 Natural Gas Supply.

All gas pipe work located internally in the dwelling shall be copper only. Galvanised pipe work is permissible for external only. All works on gas pipe work shall be pressure tested.

Where a tenant's gas meter is clamped, it is the tenant's responsibility to liaise with Gas Networks Ireland / gas supplier to resolve same. Informing tenant of same is critical.

Where there is currently no gas supply to the dwelling, then the tenant shall apply to Gas Networks Ireland / gas supplier for an account and confirm to DCC that they want gas. Following receipt of same the contractor will apply for the address to be supplied with gas from Gas Networks Ireland who will install the meter and gas supply to the meter from the mains. The contractor shall install the dwelling gas connection to the meter and commission same.

Where a meter is required to be relocated, the contractor will obtain approval from DCC for this and then the contractor will apply to Gas Networks Ireland for same. Gas Networks Ireland will arrange for the meter to be relocated. The contractor shall install the dwelling gas connection to the meter and commission same.

In all instances the contractor shall check and ensure the gas supply is of sufficient diameter, size and pressure to satisfy the requirements of the dwelling as outlined elsewhere in this document.

2.12 Weather Compensation

Where a system has an existing or new weather compensation, it shall be activated and fully functional to ensure the boiler can be operated in the most efficient manner. The position of the external weather compensation sensor is to be agreed with DCC MEES in advance, in some instances a suitable and acceptable housing for same may be required.

2.13 Boiler surrounding

Where the boiler is located in a cupboard or compartment, the ventilation requirements of the boiler manufacturer, the Building Regulations and IS 813 must be complied with fully. The Contractor must also ensure that adequate space is provided for the removal of all access panels to allow proper maintenance. Any structure built around the boiler must not interfere in any way with the correct operation of, or access to the boiler and all ancillary equipment, including isolation valves and electrical accessories. Remove and refit casing where necessary and make good.

2.14 Boiler Flue.

The boiler shall be complete with a concentric balanced flue, installed at high level with a minimum gradient in accordance with IS 813 and in strict accordance with the boiler manufacturer's instructions. The flue shall be complete with an adaptor for the boiler flue connection, flue gas analyser section and an external horizontal wall terminal with internal and external bezels. The flue must incorporate a facility to easily direct the plume upwards by rotating the discharge terminal, or, a facility to insert a vertical riser extension pipe into the terminal. Where the flue discharges at low level, a stainless-steel or PVC coated flue guard must be fitted to guard against persons coming into contact with the hot flue surface.

The location of the flue discharge point must be fully in accordance with IS 813 and the recommendations of the Registered Gas Installers of Ireland Technical Guidance Document and as agreed with DCC MEES.

Adequate fire rated inspection hatches must be provided where boiler flues are in a boxed-out enclosure. Flues must not be in hidden or enclosed in inaccessible locations.

The concentric flue shall be supported from the underside of the ceiling, or side wall, using the flue manufacturer's fully adjustable split clamp brackets. At least one bracket must be installed for every length of flue and be positioned beside each joint location. The Contractor must ensure that where sealed type spigot and socket joints are used, that they are in the correct direction i.e. in the direction of condensate flow.

A sleeve must be provided where the flue exits through the external wall and with bezels fitted to the internal and external face of the wall. The flue must not contain any joints within the wall sleeve.

Plastic concentric flues must not be exposed externally unless they are UV rated or suitably protected. All projecting sections of concentric flue must be kept to an absolute minimum.

Flues must not discharge on to balconies but must be extended to discharge at the building perimeter. In some instances where this is in a publicly accessible area and vulnerable to vandalism then a sleeve shall be provided around the flue and fixed in a suitable and acceptable manner which protects the flue from vandalism

All fixing and securing devices, nuts and bolts shall also be galvanised, stainless steel or cadmium plated. The fixing devices used shall be suitable and certified for the supported weight and material into which it will be inserted. Each joint on the completed flue system shall be checked for air and fluid leakage during the operation of the boiler in condensing mode in accordance with the tests recommended by the manufacturer.

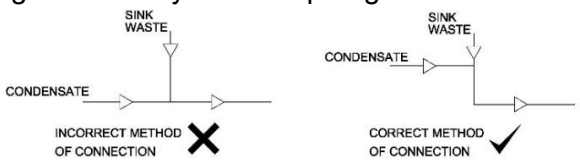
2.15 Boiler Condensate Drain.

A plastic condensate drain pipe must be installed to convey the condensate from the boiler outlet to the disposal discharge point. Depending on the location of the boiler, the discharge point for the condensate must be into the internal sink waste pipe, waste stack, gully hopper head or soil stack. The condensate drain pipework must incorporate a trap, between the boiler and discharge point, with a seal of at least 75mm. Other connections to this pipework is not permitted.

The horizontal and vertical sections of the drain pipework must be installed in accordance with EN 12056-2 with all horizontal sections laid to a minimum gradient of 2.5^{O} in the direction of flow. The Contractor must ensure that the pipework is adequately bracketed to prevent any sagging between support points.

Where a waste pipe, soil pipe, gully or hopper head is not available, an external soak pit will have to be provided if the particular site can accommodate one. The soak pit must comply with the specification requirements of the boiler manufacturer.

As condensate is slightly corrosive, it must not discharge into any pipework or drainage fittings manufactured from copper, cast iron or mild steel. If so then a neutraliser must be provided. Inverted tee connections must not be made into sink waste pipework due to the potential risk of a blockage caused by a build-up of grease. See sketch below.



BOILER CONDENSATE CONNECTION

Where the condensate pipe has to terminate externally, the pipe run must be kept as short as possible (<3.0m) and the size must increase to 32mm with a minimum gradient of 2.5^{O} in the direction of flow and terminate over the nearest gully or hopper head. Where this occurs, the Contractor must select a boiler that incorporates an accessory to limit the condensate discharge to timed intervals rather than constant discharge.

In some instances a soakaway or condensate pump may be required.

The plastic pipework for the condensate drain, must be installed in uPVC pipework complying with BS EN 4514 - Unplasticised Soil and Ventilating Pipes.

2.16 Boiler Safety Valve.

The safety valve discharge piping shall be of copper tube and be of adequate size to handle the discharge rate of the safety valve. The discharge pipe from the safety valve should incorporate an inline tundish to allow visual indication and observation of the safety valve operation. The tundish must always be fitted inside the house and never externally or in areas prone to freezing. Tundish shall be installed unless in exceptional circumstances.

The discharge pipework from the bottom of the funnel must be checked to ensure that it is adequately sized to handle the discharge rate of the safety valve. If the tundish overflows during the testing, then it must be replaced with a larger one and larger discharge pipework. As a general rule a 15mm safety valve must have a tundish with a 22mm outlet connection.

The discharge pipework must terminate in a visibly safe position and orientation. The pipe must not terminate horizontally and where the discharge point is through an external wall, it must slope at an angle of at least 5^{O} and the exposed length kept to an absolute minimum. The pipework must also bend down and the open-end face towards the wall at an angle of 45^{O} or 90^{O} all in accordance with the boiler manufacturer's instructions.

2.17 Automatic By-Pass Valve.

Even if the boiler does incorporate a by-pass valve, then an automatic bypass valve shall be fitted between the primary flow and return pipe-work in accordance with the valve manufacturer's requirements.

The valve must be set to provide the manufacturer's minimum flow rate required for the correct operation of the boiler when all circuits are closed or at their minimum flow rate. The bypass shall be fitted in an accessible position to allow easy setting, checking and maintenance. The valve shall be tested when insitu for all TRV's closed.

2.18 Magnetic Filtration Unit.

A system filter / cleaner shall be installed on the primary boiler circulation pipework in a convenient position on the return pipework, under the boiler, and in accordance with the manufacturer's instructions. The unit must not be installed / located at high level out of easy reach for maintenance. The unit must also incorporate integral isolation valves on the inlet and outlet connections.

The filter unit shall be of the bi-directional non-block design and incorporate a glass reinforced nylon housing with black finish, rare earth neodymium iron boron high intensity N42SH magnetic core in stainless steel housing, integral quick release mesh filter, bolted or threaded removable lid, EPDM or Viton 'O' ring seal to BS 244, connections to suit the existing pipework. A bleed valve and drain port must also be included. The unit shall be suitable for operating temperatures up to 95^{O}C and operating pressures up to 6 bar.

Magnetic filters shall have a pressure drop of ≤ 3.0 kPa @ flow rate of 20 litres/min. The Contractor must confirm the correct pipework size for proper operation of the filter.

All magnetic filter replacements are required to be carried out in accordance with SEAI requirements as published in Domestic Technical Standards and Specifications Version 1.3 2020. The magnetic filtration unit must be cleaned for each service.

2.19 Sealed System Kit and Expansion Vessel.

Where the existing system is a sealed type, the Contractor shall ensure there is a filling loop and expansion vessel adjacent to the boiler. The filling loop shall be a flexible stainless-steel hose with union connections at each end and incorporate a 0 - 4 bar pressure gauge, dual non-return valves and quarter-turn isolation valves. The make-up water for the heating system will be supplied from the incoming mains water pipework. The mains water supply pipework must incorporate a stopcock.

Where the there is an integral expansion vessel, the capacity of the system must be checked and the capacity of the expansion vessel verified as being adequate for the system water volume. If the boiler expansion vessel is inadequate then the Contractor must fit an additional external vessel.

Any external expansion vessel must be complete with the manufacturer's integral or loose wall mounting support. The Contractor must ensure that the vessel is securely fixed to the wall and set at the correct initial cold fill pressure. Supports made from perforated galvanised steel metal band will not be acceptable under any circumstances. The expansion vessel and filling loop must be connected to the system in accordance with the boiler manufacturer's requirements and be located in conveniently accessible positions to allow easy operation, setting, refilling and maintenance.

On completion of the service or repair, and after the completion of satisfactory tests, the filling loop must be isolated and disconnected from the incoming mains water supply. The filling

loop must only be connected to the system and valves opened when the operating pressure is low and requires to be recharged.
Where a system fill loop is connected to a boosted supply or centralised supply then the fill line shall be fitted with a pressure reducing valve c/w gauge set to 1Bar below the lifting pressure of the heating system / boiler safety valve.

2.20 Open Systems – Feed and Expansion Tank.

Where the existing system is of the open type, the Contractor must ensure that the circulating pump speed is set to ensure pitching does not occur whilst providing adequate flow and pressure to match the system characteristic. Where possible, and if necessary, the Contractor must alter the height of the open vent above the feed and expansion tank to prevent pitching. The system operation must be monitored by the Contractor for any occurrence of pitching.
A 27 litre plastic fill tank complete with float, base, insulation, overflows and drip tray shall be required to facilitate filling of the system with water and for periodic make up of water lost from the system. This tank will normally be located in the attic space, and fitted at the highest point as is practicable to achieve a maximum head. The fill tank shall not be located directly above the main cold water storage tank. A 15mm ball valve shall be fitted to the tank in such a position that it discharges above the level of the overflow pipe, and the body of the valve cannot become submerged. The mains water supply pipe to the ball valve shall be in copper pipework and incorporate a stopcock.
The water heating fill tank shall be insulated with a universal tank insulating jacket or approved equivalent and shall be complete with the following:

a) Cold feed of 15mm copper pipe.
b) Overflow of 19mm ID min plastic pipe.
c) Tank cover with downturned edges.
d) Non-return valve connected to the heating fill line.
e) Ball lever valve connected to the heating fill line
f) Proprietary PVC condensate drip tray

Where no space exists for a fill tank or the system requires pressurising, provision shall be made for a temporary supply from the mains water supply to the filling loop. This temporary connection shall be made at least two metres from the selected fill point using a temporary external hose to ensure there is no possibility of a permanent connection to the water mains. When filling is complete, it is essential the temporary fill hose shall be disconnected and removed.
The filling loop is to consist of a braided flexible hose with an isolating valve and an isolating double check valve. A pressure gauge must be fitted in the locality of the filling loop to monitor the system pressure when pressurized or vented. The pressure gauge must be fitted in a position that is legible from the system filling position. A pressure reducer valve may be required to reduce the fill pressure in some circumstances.
In some circumstances the fill point / supply to the heating system can be taken from a booster pump cold feed outlet, if the pressure exceeds 1.3 bar a pressure reducer valve must be fitted before the filling loop and set to 1.0 bar or in accordance with manufacturers specifications of the expansion vessel.
After use the filling loop is to be disconnected in all cases and blanked off with two blanking caps. The filling loop hose shall be left disconnected close to the fill point for future servicing requirements.

The filling method adopted must be in accordance with all relevant water supply regulations and use approved equipment.

2.21 System Circulation Pump.

If the integral boiler pump is inadequate to satisfy the system demands, or the boiler is not supplied with an integral pump, then the Contractor must select a suitable pump to match the system pressure and flow characteristics. The boiler manufacturer recommendations must also be adhered to and taken into account when selecting a suitable pump. The Contractor must still however ensure that the pump selected is sufficiently rated to correspond with the pressure and flow requirements of the existing system.
If a separate circulating pump is used, then pump valves must not be fitted. Separate pipework mounted isolating valves only, must be used instead.
In order to ensure a properly integrated system of control for the pump, the boiler must include an adequately rated set of connections on the main field wiring termination board to power and control the operation of the external circulation pump.

2.22 Radiators.

Radiators must be installed in the positions agreed with the DCC Mechanical and Energy Efficiency Section in conjunction with the tenant. The final exact location for each radiator within each room, will be agreed prior to installation. This will be to ensure that tenant furniture can be accommodated in specific locations and are co-ordinated with other features in each room.
All radiators must be of the roll top convector type or similar acceptable design and be complete with manual air vents, manufacturer's brackets and supports. **Grille top radiators will not be acceptable** under any circumstance, similarly grille top radiators with the grille removed will not be acceptable unless specifically originally manufactured radiators designed safely to be used without a grille and deemed acceptable by DCC MEES. Profile type radiators may be acceptable if they are deburred and deemed suitable.
All brackets and supports must be secured to the wall with suitable fixings to ensure adequate support for each radiator. The Contractor must ensure that the background on to which radiators are to be securely fixed, is adequate to take the weight of each radiator and robust enough to accept the fixing devices. Backgrounds considered adequate for fixing radiator supports include blockwork walls and timber studs in partitions.
Where the background is inadequate to support any radiator, then the Contractor must install, or arrange to have installed, suitable bracket background fixing material. Alternatively, the radiator may be relocated to a location where it can be fixed securely, in agreement with DCC Mechanical and Energy Efficiency Section and the tenant.
Note: "driva" and "toggle" type bolts are not acceptable for fixing of radiators.
Thermostatic and lock shield valves must be fitted to all radiators and comply with BS EN215, NSAI SR54 & BS7478. The thermostatic sensing head on each valve must be positioned in the vertical plane. Lock shield valves must be fitted to the radiators where the heating zone control thermostats are located. Where hand wheel valves are fitted to radiators they shall be complete with a 15mm drain tail piece. All lock shield valves on radiators fitted with thermostatic valves must be complete with drain connections. All valves on radiators shall be chromium plated.
Radiators shall be selected to adequately offset the heat loss of each heating zone. The outputs must be rated in accordance with BS EN 442 Parts 1 and 2. Radiators shall be sized to meet the room heat loss and base on an operation of 70C / 50C and room temperature as

listed previously, therefore in general the radiator will be based on a MWT of 40K and not the standard 50K, this in general approximates to a 25% larger radiator, the contractor is recommended to obtain guidance from the radiator supplier.
Each radiator shall be painted white (RAL 9016) in epoxy polyester powder electrostatically applied and stove enamelled baked.
Radiators with sharp edges or grilles will not be accepted.
Each radiator installed shall be tested with the boiler heating on at minimum 70^{O}C for a period of 20 minutes or greater if required
All TRV's are to be tested in operation. Refer also to SEAI Domestic Technical Standards and Specifications Version 1.3 2020 for requirements.

2.23 Indirect Hot Water Storage Cylinder.

Where the hot water cylinder is to be replaced, it must be a fully factory insulated floor-mounted type complete with flow and return primary pipework connections including secondary HWS flow, control thermostat, high limit thermostat, drain cock and thermometer. The unit shall be thermally insulated with a minimum of 50mm insulation to ensure compliance with TGD Part L Section 1.4.4.2 and shall have a heat loss of less than 0.8W per litre of water storage, less insulation may be used if the heat loss can be equalled.
The hot water cylinder shall be fabricated from copper sheet or stainless steel and suitable for a primary side (heating coil) operating pressure of 3.0bar, test pressure 4.5bar. The secondary (shell) side shall be suitable for an operating pressure of 3.0bar, test pressure 4.5 bar and a maximum operating temperature of 90^{O}C.
The hot water cylinder shall have a minimum recovery rate of 1 hour from 10^{O}C to 65^{O}C when supplied with primary water at 70^{O}C flow and 50^{O}C return. During the commissioning phase of the project, the Contractor must check the recovery time of the cylinder when tested under design conditions. The heater shall be a custom-made Grade 1 unit with a minimum capacity of 140 litres constructed and tested in accordance with BS 1566 and be manufactured and tested under controlled conditions. In some instances a smaller or a larger cylinder may be required. The locations for connections, thermostats and instrumentation shall be agreed in advance with DCC MEES and all are to be visible from the front of the cylinder when installed. No connection or valve is to be placed at the back, or be inaccessible, when the cylinder is installed in its final location. In some instances the installation of a new cylinder may require a new run of piping or primaries, these shall be provided. The cylinder must be thermally insulated and be in accordance with the requirements outlined in the relevant specification sections. If a specific bespoke cylinder is being installed or replaced this must be issued to DCC for review and comment. The DHW cylinder shall c/w factory fitted immersion including thermostat and safety devices.
The Contractor must obtain from the manufacturer a test certificate for the cylinder that must include the material thickness for the cylinder shell and domes together with the grade and surface area of pipework used for the heating coil.
If there is existing cabling to a working immersion on site then the Safe Electric REC electrician shall confirm if the existing cabling for the immersion conforms and is acceptable to be reused, if yes then same may be utilised. If the existing cabling on site to the immersion does not conform and is not acceptable to be reused then the contractor shall immediately notify DCC MEES who will arrange for DCC Electrical Services to rectify same, in such an instance the contractor shall notify DCC MEES immediately. If there is no existing cabling on site as there is no current immersion then the contractor may proceed to install a new cable from the new immersion to the existing fuse board.
The immersion shall be wired to a switch outside the hot press in line with Safe Electric REC requirements from an individual circuit on the fuse board.

Combi boilers shall only be fed from a cold water storage tank and under no circumstances shall a direct connection to the mains water supply be permitted. The Contractor must ensure that the internal combi boiler storage capacity is at least 40 litre or alternatively that the combi can supply all outlets in the dwelling simultaneously. In addition, the Contractor must review and confirm that the existing gas pipework is fully compliant with IS 813 and adequately sized for the boiler capacity.

2.24 Pipework, Fittings, Brackets, Isolation Valves, Air Vents and Drain Cocks.

The existing LTHW, natural gas, mains water and drain pipework at the boiler location must suit the boiler connection configuration. The Contractor must also correct any non-compliance issues on the natural gas supply from the meter to the boiler, such as incorrectly positioned or missing CIV, missing or incorrect pipework brackets and identification in accordance with IS 813.

If the gas pipework has to be replaced due to under sizing or for any other reason, then plastic-coated copper pipework must be used. The new pipework must be adequately sized in accordance with IS 813 to cater for the rated gas input of the boiler and all other gas fired appliances on site allowing for the distance from the meter to the boiler.

Where the gas pipework is located in a ceiling void, then the void must be adequately ventilated or the pipework enclosed in a continuous sleeve that is sealed at one end and open to a ventilated area at the other, all in accordance with IS 813.

Isolation valves on natural gas pipework must be of the lever operated quarter-turn full-bore ball pattern in accordance with BS EN 331 PN5. The lever on each gas valve must incorporate a shrink applied yellow coloured sleeve. All valves used on gas pipework must be certified for use on natural gas.

The complete new and existing exposed and concealed natural gas pipework installation shall be cleaned down and painted with a suitable yellow ochre paint (BS 08 C 35) in accordance with BS 4800.

All gas pipe work located internally in the dwelling shall be copper only. Galvanised pipe work is permissible for external only.

Where a tenant's gas meter is clamped, it is the tenant's responsibility to liaise with Gas Networks Ireland to resolve same.

Where there is currently no gas supply to the dwelling, then the tenant shall apply to Gas Networks Ireland for an account and confirm to DCC that they want gas. Following receipt of same DCC will apply for the address to be supplied with gas from Gas Networks Ireland who will install the meter and gas supply to the meter from the mains. The contractor shall install the dwelling gas connection to the meter and commission same.

Where a meter is required to be relocated, DCC will apply to Gas Networks Ireland for same. Gas Networks Ireland will arrange for the meter to be relocated. The contractor shall install the dwelling gas connection to the meter and commission same.

In all instances the contractor shall check and ensure the gas supply is of sufficient diameter, size and pressure to satisfy the requirements of the dwelling as outlined elsewhere in this document.

The pipework for the LTHW heating and natural gas systems shall be light gauge copper tubing to BS 2871: Part 1 Table X (EN 1057) with all brazed joints (hard soldering) using end-feed brazing fittings. For copper piping brazing, compression, soldering and press fittings are acceptable if installed in accordance and as outlined in the relevant sections of this specification. Compression joints must not be used in inaccessible locations and must only be used, where permitted, in exposed locations and at valves and equipment connections.

All hot and cold-water pipework shall be light gauge copper tubing to BS 2871: Part 1 Table X (EN 1057). Press copper pipework and fittings may be used if standard compression fittings cannot be satisfactorily installed on the same pipework, where press copper is used then the pipe sizes i.e. metric or Irish shall be provided. Where press type fittings are used the most recent calibration certificate for the tools shall be provided, this includes the serial number of the tool, no tool over 12 months old or less if recommended by the manufacturer shall be used without calibrartion, failure to adhere to same will require the pipe work to be replaced at the contractors expense – DCC will not entertain any costs relating to a contractor failing to adhere to this instructions.
Where copper pipe work is proposed to be used with a manufacturer specific tool system, this may be acceptable on the condition that the copper pipe may be cut and jointed afterwards using standard compression fittings and no manufacturer specific fittings or tools are required – written confirmation and samples to be provided prior to works.
Compression fittings must not be used in inaccessible locations as noted above.
Plastic pipe such as cross-linked polyethylene, PEX or composite multilayer pipework will not be acceptable and therefore must not be used. Push type fittings are not permitted for any material type.
Relevant fittings shall be of the end-feed brazing type to EN 1254. Compression fittings shall be in accordance with BS 864-2 and must be only used at valves and equipment connections or where disconnection is required. Where brazing fittings are used the internal cut end of the pipe shall be reamed out and thoroughly cleaned with fine wire wool prior to making the joint.
All residue at joints from the brazing process must be cleaned off with wire wool and by cleaning down with warm soapy water and thoroughly drying off all water and moisture. This applies, in particular, to uninsulated pipework exposed to view.
The filler rod for brazing (hard soldering) shall typically be 92% Cu 6% P 2% Ag alloy.
Mild steel or galvanised mild steel fittings must not be used on the pipework.
Isolation valves on LTHW pipework must be of the quarter-turn full-bore ball pattern lever operated in accordance with EN 1254/2 PN10. The lever on each valve must incorporate a shrink applied red coloured sleeve. Valves incorporating yellow colour levers on heating or domestic water pipework will be rejected.
All copper pipework must be adequately supported using brass or copper brackets securely fixed to the wall or ceiling with non-ferrous fixing devices. Plastic or galvanised steel brackets must not be used and will not be acceptable. Equally, perforated galvanised steel band will not be acceptable and if used will be rejected.

Pipework must be supported at the following maximum centres:

Pipe Size.	**Support Centres.**
15mm	900mm
22mm	1,500mm
28mm	1,800mm

Automatic air vents must be on all separate sections of high-level pipework. Each vent must be complete with an isolation valve. All vents and valves must be installed in a neat way, be adequately supported and easily and fully accessible to allow maintenance of both.
All low points in the circulation pipework must be fitted with a drain cock. All drain cocks must be in an easily accessible location to allow maintenance.
All pipework must be enclosed in a protective sleeve where it passes through blockwork walls or partitions.

Pipework must not be allowed to come into contact with galvanised steel studs, concrete, mastic compounds or with any substance that will lead to possible corrosion of the pipework. The Contractor must ensure that every precaution is taken to avoid all such contact.
All pipework must be true in shape and any kinked or distorted pipework or pipework fittings, must be removed and properly renewed. The Contractor must also ensure that other sections of pipework or fittings are not damaged during the rectification and/or replacement procedures. The residue from the hard soldering process must be cleaned from all joints after repairs to prevent staining and corrosion and to extend the joint and pipework life span.
References should also be made to other relevant sections of this specification.

2.25 Thermometers and Pressure Gauges.

Thermometers shall be of the bi-metallic strap-on type, with the dial mounted is in the vertical plane in all positions. Thermometers must be positioned to ensure the dial is clearly visible from all angles.
The operating mechanism of each thermometer shall be enclosed in a corrosion treated steel casing with a clear shatter-proof acrylic (PMMA) window, glass will not be acceptable.
The dial on each thermometer must be minimum 40mm in diameter with a graduated Centigrade scale with a range of 10 to 100^{O}C min.
Each thermometer shall be manufactured and tested to BS EN 13190.
Pressure gauges shall be of the Bourdon tube type, have a short back or bottom entry brass connection pocket as required to ensure that the dial is in the vertical plane in all positions. Pressure gauges must be positioned to ensure the dial is clearly visible from all angles.
Pressure gauges must be inserted into a brazed or compression fitting with a threaded female branch connection for the gauge. Where necessary a threaded male/female reducer shall be used to suit the pressure gauge connection.
The Cu-Alloy operating mechanism of each pressure gauge, shall be enclosed in a treated steel casing with a clear shatter-proof acrylic (PMMA) window glass will not be acceptable.
The dial on each pressure gauge must be minimum 40mm in diameter with a scale range of 0 to 4.0 bar.
Each pressure gauge shall be manufactured and tested to BS EN 837 and be suitable for operating temperatures up to 100^{O}C.
If a boiler comes with a pressure gauge and or thermometer which is mechanical and does not require electrical power then this will suffice. Fill loops shall have separate gauges.

2.26 Pipework Thermal Insulation.

Asbestos in dwellings: It is possible that some dwellings may contain asbestos material. The Contractor must undertake a survey of the works prior to undertaking the new installation/replacement and take appropriate measures.
New thermal insulation must be applied to all new and existing heating pipework if none is present. All exposed sections of pipework, including joints, in the boiler compartment, must be thermally insulated as noted below.
Where the pipework in each space or room can contribute to the useful heat of that area, then the pipework does not require the application of thermal insulation.
All hot water cylinder primary and secondary pipework must be thermally insulated in accordance with TGD-L clause 2.2.4.4.
All pipework thermal insulation must be of pre-formed closed cell structure sections with a Class 1 or Class “O” surface spread of flame in accordance with BS 476 and incorporate a vapour barrier and built-in anti-microbial protection to reduce mould and bacteria growth.

The insulation must be dust free, fibre free, CFC free with and ODP of zero. It must not cause irritation during the handling and installation process and must not be manufactured from material that is in any way carcinogenic to humans.
The insulation must be un-slit, depending on the layout of the pipework. All longitudinal and circumferential butt joints in the pipework insulation shall be jointed with an adhesive supplied by the insulation manufacturer or an approved and acceptable alternative. Adhesive tape must not be used to secure the insulation to the pipework. The Contractor must ensure that the insulation is applied correctly in accordance with the manufacturer's instructions and also make sure that there are no gaps in the longitudinal and circumferential butt joints.
In unheated spaces, the thickness of the thermal pipework insulation must be in accordance with clause 2.2.4.3 (b) of the Building Regulations Technical Guidance Document Part L (TGD-L). In all other internal areas where the temperature needs to be limited e.g. the boiler compartment, the pipework thermal insulation shall have a minimum thickness equal to the diameter of the pipe and have a thermal conductivity of 0.035 W/mK at 40^{O}C in accordance with EN ISO 8497 and be manufactured in accordance with BS 3958 Part 4.

2.27 Systems Automatic Time and Temperature Controls.

Depending on the configuration of the heating, the automatic controls will take the form of one of the following control arrangement configurations below. The Contractor must also ensure that all the automatic controls configurations outlined below, fully comply with the requirements of the Building Regulations Technical Guidance Documents TGD 'L'.
The control systems must be configured to ensure that the boiler does not operate or cycle when there is no demand for heating or domestic hot water.
All space mounted thermostats to be installed in locations agreed with DCC MEES prior to works. The Contractor must reposition any thermostat installed without agreed approval.
Where a tenant has their own 3rd party controls installed in the dwelling the contractor shall re wire these if a new installation is required but is not required to set times etc. on same.
To facilitate a compact and tidy wiring installation, each control system must be complete with a wiring centre that is to be located beside the boiler in the boiler compartment or kitchen unit module.
Room thermostats must be located in positions not affected by direct solar gain or adjacent radiators and be mounted at a height of 1,200mm - 1,400mm above floor level in accordance with the manufacturer's instructions and Irish TGD-M.
All items of control equipment, programmer, thermostats and motorised valves, must be wired in accordance with the manufacturer's specific control equipment requirements and instructions to suit the configuration of the particular system.
The control of the hot water cylinder temperature shall be by means of an immersion thermostat. The Contractor must arrange for a 15mm female connection on the hot water cylinder to accommodate the thermostat. The connection must be located 100mm above the cold feed inlet and be accessible at the front of the cylinder. The thermostat must be complete with an immersion pocket.

In some infrequent instances a mechanical temperature control valve (TCV) maybe required for the hot water cylinder due to site specific constraints and requirements. In such instances the TCV shall be set to 60°C hot water cylinder storage temperature with the capillary probe secured in contact with the cylinder wall 1/3 above the distance between the cold feed inlet and the top of the cylinder (not the insulation). This shall be installed with a local automatic by pass valve and only after written approval is received from DCC MEES.

In the instances where a TCV is required it shall be supplied and fitted as part of the standard control pack arrangement, as other elements of the standard control configuration will not be used in such an installation e.g. motorised valves, wiring, two channels etc.
Note: This is an infrequent occurrence and not the standard setup.

If the cylinder is in good condition and is to be re-used, then the thermostat must be of the strap-on type fixed to the hot water cylinder 100mm above the cold feed connection. The cylinder thermal insulation must be removed at this position and the adhesive residue cleaned from the copper with fine sand paper. A high-grade thermal compound with a minimum thermal conductivity of 11.0 w/mK shall be used to ensure good heat transfer from the cylinder body to the thermostat sensing element.

Arrangement 'A'.
Where the repair consists of a combination gas-fired condensing boiler serving the heating, provided by radiators, and hot water requirements, the controls shall be as follows:

This heating system will be a sealed type in this arrangement with the boiler providing heating and domestic hot water.

A single or two channel seven-day electronic programmer to control the operating times of the heating. The programmer must incorporate a backlit liquid crystal display, a boost and holiday facility with indicating lights to show the operating state of the system. A thermostat must also be installed to control the output of the heating system (radiators) in conjunction with thermostatic radiator valves. The thermostat will be connected directly to the boiler control panel. The thermostat must incorporate an indicating light and be located where the radiator or radiators do not incorporate a thermostatic radiator control valve. Depending on the configuration of the house, this is usually in the lower level of a two-storey dwelling, such as the hallway or corridor area. If two separate heating zones are already present in the dwelling regardless of its floor area then same shall be maintained unless requested. The temperature of the domestic hot water will be controlled by the integral thermostat on the gas-fired boiler. A carbon monoxide detection system must be installed to automatically isolate the electrical supply to the boiler, in accordance with relevant clauses in this specification.
Note, this configuration is generally only suitable for single bedroom or bathroom houses and apartments.
The boiler operation must be automatically interlocked to ensure that it switched-off when there is no time or temperature requirement for heating or domestic hot water.

Arrangement 'B'.
Where the repair consists of a system gas-fired condensing boiler serving the heating and hot water requirements, the controls shall be as follows:

The heating system will be a sealed type in this arrangement incorporating a hot water storage cylinder.

A one, two or three-channel seven-day electronic programmer to control the operating times of the heating and the hot water. The programmer must incorporate a backlit liquid crystal display, a boost facility for each separate channel and a holiday facility with

indicating lights to show the operating state of the system. The number of channels will depend on the layout of the house. One or two channels will control the radiator circuits and a second or third channel will control the hot water cylinder. A thermostat must also be installed to control the output of the heating system (radiators) in conjunction with thermostatic radiator valves. If the house is in excess of 100m^2, then the living areas must be controlled separately from the bedrooms. One thermostat to be located on the first floor landing, second thermostat to be located on ground floor in the hall or adjacent to the time clock in the kitchen. This must be achieved by the incorporation of motorised valves in an 'S' type system configuration i.e. a separate motorised valve for each zone and the hot water cylinder. If two separate heating zones are already present in the dwelling regardless of its floor area then same shall be maintained unless requested.
Each zone must have a wall mounted thermostat and the cylinder either a lockable immersion or strap-on thermostat with a manually resettable high limit cut-out. The cylinder thermostat must be located 100mm above the cold feed connection. All thermostats must incorporate an indicating light and the zone heating thermostats must be located where the radiator or radiators do not incorporate a thermostatic radiator control valve. Depending on the configuration of the house this is usually in the lower level, such as the hallway or corridor area.

The boiler operation must be automatically interlocked to ensure that it switched-off when there is no time or temperature requirement for heating or domestic hot water.

A carbon monoxide detection system must be installed to automatically isolate the electrical supply to the boiler as outlined elsewhere in this document.

Arrangement 'C'.
Where the repair consists of a gas-fired condensing boiler serving the heating and hot water requirements, the controls shall be as follows:

The system will be an open type i.e. incorporate a feed and expansion tank, in this arrangement, including a hot water storage cylinder.

A one, two or three-channel seven-day electronic programmer to control the operating times of the heating and the hot water. The programmer must incorporate a backlit liquid crystal display, a boost facility for each separate channel and a holiday facility with indicating lights to show the operating state of the system. The number of channels will depend on the layout of the house. One or two channels will control the radiator circuits and a second or third channel will control the hot water cylinder. A thermostat must also be installed to control the output of the heating system (radiators) in conjunction with thermostatic radiator valves.
If the house in in excess of 100m^2, then the living areas must be controlled separately from the bedrooms. One thermostat to be located on the first floor landing, second thermostat to be located on ground floor in the hall or adjacent to the time clock in the kitchen. If two separate heating zones are already present in the dwelling regardless of its floor area then same shall be maintained unless requested. This must be achieved by the incorporation of motorised valves in an 'S' type system configuration i.e. a separate motorised valve for each zone and the hot water cylinder. Each zone must have a wall mounted thermostat and the cylinder either a lockable immersion or strap-on thermostat with a manually resettable high limit cut-out. The cylinder thermostat must be located 100mm above the cold feed connection. All thermostats must

incorporate an indicating light and the zone heating thermostats must be located where the radiator or radiators do not incorporate a thermostatic radiator control valve. Depending on the configuration of the house this is usually in the lower level, such as the hallway or corridor area.

The boiler operation must be automatically interlocked to ensure that it switched-off when there is no time or temperature requirement for heating or domestic hot water.

A carbon monoxide detection system must be installed to automatically isolate the electrical supply to the boiler as outlined elsewhere in this document,

2.28 Carbon Monoxide.

Carbon monoxide (CO) detectors must be installed and interlinked to the gas boiler controls to automatically shut-down and electrically isolate the gas-fired boiler completely upon the detection of carbon monoxide. The detectors can be of the radio inter linked type and must be able to download detector data and incorporate an isolation relay on the main electrical supply to the boiler and include status indicator. The number of detectors required is:

1 no. for room in which boiler is located.

The above detector is to be installed if there is presently no CO detection within the room the boiler is located, **this installation is required if no CO detection is found on either a service or repair** carried out in a home, where there is a high efficiency condensing boiler.

Where there is a standard efficiency boiler, CO detection is required as above however it is not required to be interlinked to shut down and isolate the boiler.

Where the boiler flue is located in a boxed-out feature or a ceiling void, an additional carbon monoxide detector must be installed. Where the boxed-out feature contains a number of compartments, then each individual compartment must have a detector installed.
Where the boxed out or exposed flue passes through a bedroom, the detector should be installed on the ceiling and in accordance with IS:813 requirements.

Each detector must be complete with the following:

- Visual and audible end-of-life red indicator.
- Visual power supply green indicator.
- Visual alarm red indicator.
- Visual fault yellow indicator.

Each detector must be capable of downloading the following data:

- How long the Detector/alarm has been on for.
- Battery status and if a low battery level has been detected.
- CO levels, events and alarm sounds.
- Peak CO Level

New detectors must be installed, tested and commissioned fully in accordance with the requirements of the manufacturer and to satisfy the requirements of IS 813 and the Building Regulations.
Any existing carbon monoxide detectors replaced must be removed and disposed of in an appropriate manner in accordance with the WEEE Regulations.

Carbon monoxide alarm systems are to be separate from heat or smoke detectors and not combined units.
If the Safe Electric REC electrician is not satisfied with the current fuse board then the contractor must notify DCC MEES within 48 hours of the heating contractor receiving the project go ahead from DCC MEES.

2.29 Testing, Commissioning and Setting to Work.

A Let by test and Soundness test must be carried out with a minimum stabilisation period and test duration of 2 minutes each shall take place for each Service or Repair.
The Contractor must carry out all necessary tests on the individual equipment newly replaced prior to the commissioning and setting to work. All separate items of equipment, such as carbon monoxide detectors, must be commissioned by the manufacturer or a certified, approved and competent operative, fully trained by the particular equipment manufacturer, where this is appropriate and permissible. A detailed record must be made of each test undertaken and the results fully documented.

The Contractor must carefully organise the replacement works and particularly the system commissioning and setting to work stages. To this end, and to return the system to a fully operational and safe state as quickly as possible, the Contractor must provide a set time schedule for undertaking all these works in view of the fact that the majority of the dwellings will be occupied during the works.

2.30 Cold Water Storage Tanks

The cold water storage tank shall be manufactured from a single piece high density polythene to BS 4213 insulated, covered and sized in accordance with Dublin City Council water storage requirements with minimum capacity of 240 litres, the tank shall be in accordance with the requirements of TGD-G 2010 and associated Technical Guidance Documents (A – M).

Each storage tank shall be provided with a suitable approved base, secure propriety PVC tank cover, ball cock, WRAS approved isolation valve, PVC drip tray with drain piped to outside and overflow pipe to external visible location.

Cold water pipe work insulation should be in accordance with TGD-G 2010 particular note should be made to Appendix Table 1 (requiring 5mm - 113mm insulation on pipe).

Cold water storage tanks in attics should be insulated in accordance with Irish Building Regulations TGD-G 2010 diagram 3.
All cold water systems shall prior to commissioning be tested, flushed and chemically sterilized prior to the connection of any tanks or pumps. The cold water system shall be thoroughly flushed, vented, strainer / filters checked and confirmed to be clean. Venting of system sections by means of relief valves shall not be permitted as this leads to valves weeping – venting shall be by lockable automatic air vents only.

The preference for cold water systems is to avoid the use of local booster pumps in dwellings. Cold water supplies inside dwellings should be fed naturally via gravity or if pumped systems are required then the plant for same should be sited where noise / vibrations will not be an issue for tenants.

SECTION 04
APPENDICES

APPENDIX 'A'

DOMESTIC HEATING SYSTEM SERVICE & INSPECTION RECORD			
CONTRACTOR:			
DUBLIN CITY COUNCIL UPRN:			
DWELLING ADDRESS:			
SERVICE & INSPECTION DATE:			
GAS METER LOCATION:			
BOILER MAKE:			
BOILER MODEL:			
BOILER LOCATION:			
BOILER SERIAL NUMBER:			
BOILER TYPE SYSTEM OR COMBI:	SYSTEM	/	COMBI
NUMBER OF CONTROL ZONES:			
NUMBER OF THERMOSTATS:			
THERMOSTAT BATTERY POWERED:	YES	/	NO
IF YES, CHANGE BATTERIES	YES	/	NO
NEUTRALISER PRESENT:	YES	/	NO
IF YES, CHANGE NEUTRALISER	YES	/	NO
THERMOSTAT MAKE & MODEL;			
PROGRAMMER MAKE & MODEL:			
TEST EACH ZONE & CONFIRM M.V.'s WORKING:	YES	/	NO
NUMBER OF RADIATORS:			
NUMBER OF T.R.V.'s:	YES	/	NO
CARBON MONOXIDE DETECTOR	YES	/	NO
CYLINDER FACTORY OR JACKET INSULATED:	FACTORY	/	JACKET
SYSTEM PRESSURE UPON ARRIVAL & LEAVING	BAR	/	BAR
ANY VISUAL SIGNS OF DAMAGE OR LEAKS ANYWHERE IN THE ENTIRE HEATING SYSTEM:	YES / NO Comment		
ANY OTHER COMMENTS / NOTES:			

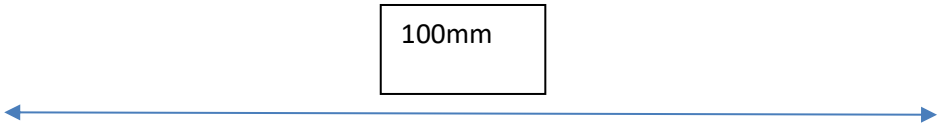
REQUIRED PHOTOS		
BOILER & SERVICE STICKER	**MAGNETIC / BOILER FILTER BEFORE CLEANING**	**MAGNETIC / BOILER FILTER AFTER CLEANING**

APPENDIX 'B'

DOMESTIC HEATING SYSTEM REPAIR RECORD	
CONTRACTOR:	
DUBLIN CITY COUNCIL UPRN:	
DWELLING ADDRESS:	
REPAIR DATE:	
BOILER OR NON-BOILER FAULT:	BOILER / NON-BOILER
BOILER MAKE:	
BOILER MODEL:	
BOILER LOCATION:	
BOILER SERIAL NUMBER:	
CARBON MONOXIDE DETECTOR	YES / NO
BOILER UNDER WARRANTY:	YES / NO
RGI CERTIFICATE REQUIRED FOR REPAIR	YES / NO
FAULTY PARTS UNDER WARRANTY:	YES / NO
SYSTEM PRESSURE UPON ARRIVAL & LEAVING	BAR / BAR
DETAIL CAUSE OF FAULT & REPAIR CARRIED OUT:	
ANY VISUAL SIGNS OF DAMAGE OR LEAKS ANYWHERE IN THE ENTIRE HEATING SYSTEM:	YES / NO Comment
ANY OTHER COMMENTS / NOTES:	

REQUIRED PHOTOS	
CAUSE OF FAULT BEFORE REPAIR	**LOCATION of FAULT AFTER REPAIR**

APPENDIX 'C'





NOTE: The above is for illustration purposes only, alternatives may be presented but DCC reserves the right to refuse if alternative is deemed unacceptable. In all cases the above dimensions are minimum, five years records shall be capable of being recorded and the sticker shall be a foil finish with DCC details including contact number. Text shall be clear and suitable for the visually impaired, text size for contact number / details shall be 22 point minimum.

APPENDIX 'D'

Domestic Service & Repairs Contractors Heating Returns - SHAREFILE CHECKLIST

On Sharefile the following needs to be uploaded, note each of the below numbered sections is to be a separate folder. Refer to Section 1.39 for details.

FORMS FOLDER SHALL CONTAIN THE FOLLOWING SUB-FOLDERS:

1. RGII ☐
2. Appendix A(Domestic Heating system service & inspection Record) ☐
3. Appendix B(Domestic Heating system Repair Record) ☐

REPORTS FOLDER SHALL CONTAIN THE FOLLOWING SUB-FOLDERS:

1. Service Reports ☐
2. Repairs Reports ☐
3. Carded Reports ☐

INVOICES FOLDER SHALL CONTAIN THE FOLLOWING SUB-FOLDERS:

1. Service Invoices ☐
2. Repairs Invoices ☐